SC SUPER|CIRCUITS

H.264 Network DVR
User Manual

Product: DMR40DVD, DMR41DVD, DMR42DVD

Please read this manual before using your recorder, and always follow the
instructions for safety and proper use. Save this manual for future reference.

⚠ **WARNING**

Do not expose this product to liquids. Objects filled with liquids, such as vases, should be kept away.

✋ **CAUTION**

This is a Safety Class 1 Product (provided with a protective earth ground incorporated in the power cord). The mains plug must be inserted in a electrical outlet provided with a protective earth contact. A break in the protective conductor inside or outside of the product can be dangerous. Tampering with the protective earth ground circuit is prohibited.

CE

This product complies with radio interference requirements.

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SECTION 1
Product Description

The DMR40DVD, DMR41DVD, and DMR42DVD network DVRs includes H.264 technology for improved video quality, higher storage density, and faster file acquisition across the network. Recording backups can be performed through a USB port and/or an optional DVD writer. Depending on the model, they also support up to two internal SATA HDDs. All models come with an IR remote control.

1.1   Features

Your DVR includes the following special features:

- H.264 t4echnology for improved video quality, higher compression, and faster file transfer
- VGA support
- Graphical and multi-language OSD
- Remote independent operation – Allows single-channel viewing of remote cameras without changing display settings on the monitor connected to the DVR.
- Pentaplex operation: simultaneous live display, record, playback, backup, and network operations
- Excellent image quality and performance. Frame image quality is clear and detailed video
- Intelligent motion trigger recording
    - Selectable motion detection areas in each channel, scheduled motion detection recording, and quick search
    - Supports pre-alarm recording (up to 30 seconds)
    - Activates event recording on alarm. Sends an email with the event snapshot to designated e-mails/FTP addresses
- Backup devices – Supports USB 2.0 flash drive, DVD writer, and network
- Remote surveillance – Supports remote surveillance by up to 10 users simultaneously with Video Viewer software, Microsoft® Internet Explorer®/Mozilla® Firefox®/Apple® Safari® web browser, and QuickTime® player. Can be accessed with SC Mobile Apple® iPhone® app (view only).
- Covert recording mode: blank screen replaces live displays during covert recording
- Audio support
- General
    - Supports internal SATA HDD
    - Supports IR remote control
    - System auto recovery after power failure
    - Supports PTZ camera operations through RS485
    - Supports daylight saving time
    - Supports manual/timer/motion/network recording
    - Supports TCP/IP, PPPoE, and DHCP network connection.
    - Supports DDNS updating

1.2   Package Contents

Your DVR product includes the following:

- Digital video recorder (DVR)
- HDD bracket and screws
- Power adapter and power cord
- D-sub connector
- IR remote control
- IR receiver (optional)
- AAA size battery (2)
- CD-ROM (with this manual and Video Viewer software)
- Quick Start Guide and IR remote control manual

SECTION 2
Front and Rear Panel Controls and Indicators

2.1   Front Panel

DMR40DVD front panel

2.1.1   LED Indicators:

HDD ▭	HDD is reading or recording
⏻	DVR is powered on
🔊	An alarm is triggered
🕐	Timer recording is on
▷	Playback status (DMR40DVD only)
HDD FULL	HDD is full (DMR42DVD and DMR41DVD only)

2.1.2   Buttons

MENU – Press **MENU** to open the main menu.

ENTER – Press **ENTER** to apply and confirm the setting.

SLOW – In playback mode, press **SLOW** to slow playback.

ZOOM – In FRAME or FIELD recording mode, press to enlarge the view of the selected channel.

⊞ – Press for 4 channel display mode.

SEQ – Press to activate the call monitor function. Press again to exit Monitor mode.

POWER – Press and hold for 5 seconds to turn the DVR on/off. When the DVR is recording mode, stop recording before turning off the DVR.

CH1 ~ 16 / CH1 ~ 8 / CH1 ~ 4 – Press the channel number buttons to select the channel to display.

PLAY – Press to playback recorded data.

▲ / ▼ / ◀ / ▶ – Directional keys.
- In MENU mode to move the cursor up/down/left/right
- In PTZ mode to move the camera direction up/down/left/right
- Use to control recorded video playback:
  - ▲ – pause play
  - ▼ – to stop play
  - ▶ – fast forward
  - ◀ – rewind

AUDIO (**SLOW** + **ZOOM**) – Press to select live or playback sounds from the audio channels.

🔊1	Live audio of the 1st audio channel	🔊1	Playback audio of the 1st audio channel
🔊2	Live audio of the 2nd audio channel	🔊2	Playback audio of the 2nd audio channel
🔊3	Live audio of the 3rd audio channel	🔊3	Playback audio of the 3rd audio channel
🔊4	Live audio of the 4th audio channel	🔊4	Playback audio of the 4th audio channel
🔇	The audio channel is not selected.		

PTZ – Select the PTZ camera channel and open a full-screen display, then press ⊞ + **SEQ** at the same time to enter/exit the PTZ control mode.

In the PTZ control mode:
– Zoom in – Press **SEQ**
– Zoom out – Press ⊞
– Adjust pan and tilt angle – Press ▲ / ▼ / ◄ / ►

LIST (Event List Search) – To quickly search recorded files by event, click to list files in the event lists.

SNAP – Press to take a snapshot.

> **NOTE** *Before making a snapshot, insert a compatible USB flash drive into the USB port. Refer to Appendix B.*

REC (DMR42DVD and DMR41DVD only) – Press to start manual recording function when this function is disabled.

EJECT – Press to open or close the DVD tray.

USB – Supports firmware upgrade and file backup.

2.2　Rear Panel

DMR40DVD back panel

75Ω/HI-IMPEDANCE switch – Set this switch to HI-IMPEDANCE when using the LOOP connector to extend the INPUT signal to another device or INPUT channel. Otherwise, set to 75Ω.

INPUT (1 ~ 16/1 ~ 8/1 ~ 4) – Connect to video sources (cameras).

LOOP (1 ~ 16/1 ~ 8/1 ~ 4) – Video output connector (with selected models only).

> **NOTE** *The DVR automatically detects the video signal of a camera when the camera is connected to the DVR and powered on before the DVR is powered on.*

MONITOR – video output to monitor.

CALL – Connect to a sequencing call monitor.

AUDIO channels 1, 2, 3, 4 – Connect to camera audio or other audio sources. The audio input is recorded when the associated video input channel is recorded.

NOTE	*To make a video backup with audio, camera which supports the audio function must be connected to a video channel (INPUT) which supports audio recording. Up to four channels for audio recording are supported:* *AUDIO 1 audio data is recorded with (video) INPUT channel 1.* *AUDIO 2 audio data is recorded with INPUT channel 2.* *AUDIO 3 audio data is recorded with INPUT channel 3.* *AUDIO 4 audio data is recorded with INPUT channel 4.*

Audio OUT – Connect to a monitor audio input or powered speaker with a mono audio input.

VGA – Connect directly to a monitor VGA (PC) input.

IR – Connect the IR receiver extension line (optional) for remote control.

RS485 – Connect to devices with an RS485-A and RS485-B interface (such as speed dome cameras). (DMR42DVD and DMR41DVD only.)

EXTERNAL I/O – Attach the supplied 15- or 25-pin D-sub connector to this port for connecting external devices (external alarm, etc). Refer to Appendix A. (Selected models only.)

LAN – Connect to a Ethernet network.

LINK / ACT LED – When the network is activated the LED light will be on.

DC 19V – Connect the DVR power adapter to this jack.

SECTION 3
Connections and Setup

The hard disk drive (HDD) included in your system is a security grade device, factory tested and certified to be functional with all operations of the DVR.

NOTE	*Opening the DVR enclosure will void the warranty.*

If you need to change the HDD installed in your DVR, return the device to Supercircuits for a factory installation (preserves the warranty), or refer to the HDD compatibility list in Appendix C for recommended HDD models. If installing an HDD, use the following instructions.

3.1   HDD installation

> > > **OPENING THE DVR ENCLOSURE WILL VOID THE WARRANTY** < < <

The HDD you install must be compatible with the DVR hardware. The DVR accommodates only SATA HDDs. Refer to the HDD compatibility list in Appendix C.

CAUTION	*The DVR must be powered off when installing an HDD.*

3.1.1   HDD installation for DMR42DVD and DMR41DVD

To install the HDD, do the following:

1.   Power off the DVR and disconnect the power adapter.

2.   Remove the DVR top cover.

3.   With the front panel facing you, find the two HDD brackets. One is on the left and one in the middle.

> > > OPENING THE DVR ENCLOSURE WILL VOID THE WARRANTY < < <

4.   The HDD may be installed in the left or right bracket:

To install the HDD in the left bracket:

  i.   Orient the HDD so that the circuit board side is facing up. Connect the power and data
        bus cables to the HDD.
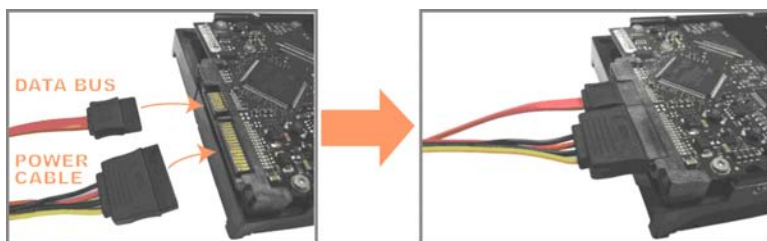
  ii.   Position the HDD in the left bracket with the circuit board toward the bracket (down).

  iii. Secure the HDD to the bracket with four screws, two on each side.

To install the HDD in the middle bracket:

  i.   Remove the middle bracket from the DVR chassis.

  ii.   Orient the HDD so that the circuit board side is facing up, then slide the HDD into the
        bracket.

> > > OPENING THE DVR ENCLOSURE WILL VOID THE WARRANTY < < <

iii.   Secure the HDD to the bracket with four screws, two on each side.

iv.   Connect the power and data bus cables to the HDD (see photos above).

v.   Place the bracket (with the HDD) back into the DVR and secure it to the chassis.

5.   Reinstall the DVR top cover.

6.   Reconnect the power adapter.

3.1.2   HDD installation for DMR40DVD

For DVRs with a DVD drive, the HDD is installed in the right side bracket. For DVRs without a DVD drive, the HDD is installed in the bracket on the left.

NOTE	*The following describes an HDD installation into a 4-channel DVR WITHOUT a DVD drive. If your DVR has a DVD drive, ignore steps 3.a and 3.d.*

1.   Power off the DVR and disconnect the power adapter.

2.   Remove the DVR top cover.

3.   Position the DVR so that you are facing the rear panel.

a.   Remove the left HDD bracket from the chassis. If your DVR includes a DVD drive, skip this step and continue with step 3b.

> > > OPENING THE DVR ENCLOSURE WILL VOID THE WARRANTY < < <

b.   Position the HDD in the bracket with the circuit board side toward the bracket. Secure the HDD to the bracket with four screws, two on each side.

c.   Connect the power and data bus cables to the HDD.

d.   Reattach the bracket (with the HDD) to the DVR chassis. Skip this step if your DVR has a DVD drive.

> > > OPENING THE DVR ENCLOSURE WILL VOID THE WARRANTY < < <

4.   Reinstall the DVR top cover.

5.   Reconnect the power adapter.

3.2   Camera connection

Refer to the documentation supplied with your camera for installation and setup instructions. For most cameras, the following must be completed before power is applied to the DVR.

3.2.1   Regular Camera Connection

Following is a typical method for connecting cameras to the DVR. Refer to the camera user documentation for specific instructions.

1.   **Audio cable connection** (optional) – Connect the camera audio output cable to an Audio IN connector on the DVR.

2.   **Video cable connection** – Connect the camera video output cable to the video input connector on the DVR. If the camera provides audio, plug the video cable into the INPUT connector with the same number as the connector where the audio (Audio In) is attached.

3.   **Power connection** – Connect the power adapter to the camera.

### 3.2.2   Speed Dome camera RS485 cabling

Following is a typical method for connecting a speed dome camera to RS485 control signals from the DVR. Refer to the camera user documentation for specific instructions.

1.   Acquire an RJ11 cable of sufficient length and route it from the DVR to the speed dome camera.

2. Connect the RJ11 cable to the DVR.

    a. If an RS485 port is present on the DVR back panel (DMR41DVD, DMR42DVD only):

        i. Examine the RJ11 connector. Record the colors of the center pair wires in the RJ11 connector that connect to pin 3 and pin 4 (center pair) of the RS485 port. These pins provide the RS485-A and RS485-B signals to the camera. Usually these wire colors are red and green respectively.
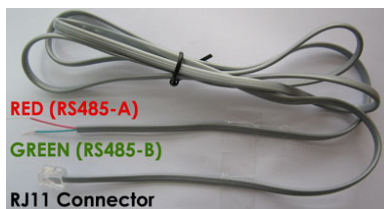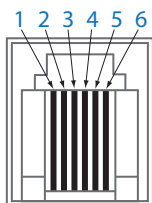
RS485 port
Pin 3: RS485-A
Pin 4: RS485-B

        ii. Plug the RJ11 connector into the RS485 port.

    b. If an EXTERNAL I/O port is present on the DVR back panel (DMR40DVD only):

        i. At the DVR, remove the connector from the RJ11 cable and strip some insulation from the red and green wires.

        ii. Solder the RJ11 cable red wire to pin 11 on the 15-pin D-sub connector. See the connector pin diagram below.
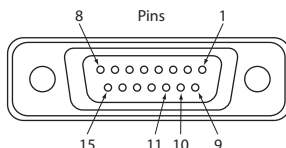
Pin 11: RS485-A
Pin 10: RS485-B

15-pin D-sub connector – solder side

        iii. Solder the RJ11 cable green wire to pin 10 on the 15-pin D-sub connector.

iv.   Plug the 15-pin D-sub connector into the EXTERNAL I/O port.

3.   At the camera, remove the RJ11 connector and insulation form the red and green wires in the cable.

4.   Connect the red wire (RS485-A signal) to the wire labeled RS485-A (or RS485+) at the speed dome camera.

5.   Connect the green wire (RS485-B signal) to the wire labeled RS485-B (or RS485–) at the speed dome camera.

6.   Seal the wire connections with insulating tape, shrink wrap, or equivalent to protect them from moisture and from shorting to other conductors.

7.   Check the camera configuration switches to determine the camera ID number, RS485 protocol and baud rate. Save this information for use when configuring the DVR software for your system.

SECTION 4
DVR Software Usage

4.1   Power on the DVR

To power on the DVR:

1.   Power on all cameras connected to the DVR and wait until they initialize.

2.   Connect the DVR power cable to the power adapter and to the DVR, then plug the power adapter into an electrical outlet.

3.   Press the **POWER** button on the front of the DVR. The DVR power LED will be lit. When the DVR initializes, it automatically senses the cameras connected to it.

4.2   Menu tree*

QUICK START MENU		STATUS	CHANNEL TITLE
			EVENT STATUS
			DATE DISPLAY
		RECORD	IMAGE SIZE
			QUALITY
			IMAGE PER SECOND
		TIMER	RECORD TIMER
			DETECTION TIMER
		DATE	DATE
			FORMAT
			DAYLIGHT SAVING
ADVANCED MENU		ADVANCE CONFIG	CAMERA
			DETECTION
			ALERT
			NETWORK
			SNTP
			DISPLAY
			RECORD
			REMOTE

ADVANCED MENU (cont.)		SYSTEM INFO	SERIAL TYPE
			BAUD RATE
			HOST ID
			PASSWORD
			RESET DEFAULT
			CLEAR HDD
			UPGRADE
			R.E.T.R. (MIN) (selected models)
			AUTO KEYLOCK (SEC)
			LANGUAGE
			VIDEO FORMAT
			VERSION
		EVENT INFO	QUICK SEARCH
			EVENT SEARCH
			HDD INFO
			EVENT LOG
		BACKUP	USB BACKUP
			DISK BACKUP (selected models)

* Icons included in this menu tree differ between DVR models.

4.3   Menu operations keys

Refer to the following table to move through the menu system and make configuration settings.

Table 1. Menu operations keys

Item	Function
QUICK START menu	View and change the settings of the QUICK START menu items.
MENU	Enter/exit the QUICK START menu
▲ ▼	Make the selection/Change the setting
◄ ►	Go to the upper layer or sub-layer. Make a selection
ENTER	Confirm entry
▼ ADVANCED MENU:	In the QUICK START menu, move to ▼, then press ▼ to open the advanced setting menu.
ENTER	Go to the sub-layer of the advanced menu
MENU	In a submenu, use this button to confirm the settings you selected and return to the higher level menu.

Item	Function
→ NEXT	Move to this item then press **ENTER** to go the next page.
← BACK	Move to this item then press **ENTER** to go the previous page.

Other operations in the ADVANCED menu are the same as in the QUICK START menu.

4.4 QUICK START menu

Press **MENU** and enter the password to open the QUICK START menu.

4.4.1 STATUS

In the QUICK START menu, go to the **Status** icon to view the following screen:

The **QUICK START STATUS** submenu includes:

- **CHANNEL TITL**E – Display channel title (ON/OFF).
- **EVENT STATUS** – Display symbols of the event (ON/OFF).
- **DATE DISPLAY** – Display the date, status icons and remaining HDD capacity (ON/OFF).

4.4.2 RECORD

In the **QUICK START** menu, go to the **RECORD** icon to view the following screen:

```
                        QUICK START
        CHANNEL TITLE              ON
        EVENT STATUS              ON
        DATE DISPLAY             ON

        IMAGE SIZE               CIF
        QUALITY                  BEST
        IMAGE PER SECOND         120
        RECORD TIMER             OFF
        DETECTION TIMER          OFF

        DATE            2008 / APR / 24   10 : 29 : 00
        FORMAT                   Y / M / D
        DAYLIGHT SAVING          OFF

  ADVANCE  ↑↓ SELECT   ← BACK   → NEXT   ↵ ENTER
```

The **QUICK START** record submenu includes the following parameters:

- **IMAGE SIZE** – Select either FRAME, FIELD or CIF.
- **QUALITY** – Select either SUPER BEST, BEST, HIGH or NORMAL.
- **IMAGE PER SECOND** – Select the images per second for MANUAL RECORD.

4.4.3   TIMER

In the QUICK START menu, go to the TIMER icon to view the following screen. In the timer section, you can schedule time frames for the recording and detection functions.

```
                         QUICK START
        CHANNEL TITLE              ON
        EVENT STATUS               ON
        DATE DISPLAY               ON
        IMAGE SIZE                 CIF
        QUALITY                    BEST
        IMAGE PER SECOND           100
        RECORD TIMER               OFF
        DETECTION TIMER            OFF
        DATE                       2008 / APR / 24   10 : 29 : 00
        FORMAT                     Y / M / D
        DAYLIGHT SAVING            OFF

ADVANCE   ↑↓ SELECT    ← BACK    → NEXT    ↵ ENTER
```

The **RECORD TIMER** submenu is used to setup a recording schedule that repeats weekly.

- **RECORD TIMER** – Use the ▲ and/or ▼ buttons to change the setting (ON/OFF). When set to ON press **ENTER** to open the submenu for setting the record time.

```
                         RECORD TIMER

              0   2   4   6   8   10  12  14  16  18  20  22  24
      SUN
      MON
      TUE
      WED
      THU
      FRI
      SAT

PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTINGS
↑↓ ← → MOVE      ↵ SELECT
```

X axis	0 ~ 24 hours. Each time interval within a square is two hours divided into four 30-minute segments.
Y axis	Sunday ~ Saturday
Operation	Move to the start time point then press **ENTER** to set the starting time (marked in red color). Use ▲, ▼, ◄, or ► to move forward in time to the ending time. Press **ENTER** again to mark the ending time (marked in yellow). Press **MENU** to exit.

- **DETECTION TIMER** – Use the ▲ and/or ▼ buttons to change the setting (ON/OFF). When it is ON, press **ENTER** to open the submenu for setting detection sensing time.

X axis	0 ~ 24 hours. Each time interval within a square is two hours divided into four 30-minute segments.
Y axis	Sunday ~ Saturday
Operation	Move to the start time point then press **ENTER** to set the starting time (marked in red color). Use ▲, ▼, ◀, or ▶ to move forward in time to the ending time. Press **ENTER** again to set the ending time (marked in yellow). Press **MENU** to exit.

4.4.4   DATE

In the **QUICK START** menu, go to the DATE icon to set the system date and time. This setting should only be made during initial setup of the DVR and after replacing the DVR battery.

> **NOTE**   *DO NOT change the date or time of your DVR after the recording function is activated. Since recorded data is time stamped, old data may become unusable. If the date or time is changed after recording is activated, clear all HDD data.*

The DATE submenu items are described below:

- **DATE** – Set the current date and time. The default order is YEAR / MONTH / DAY HOUR : MIN : SEC.
- **FORMAT** – Select one date format from the following 3 options: Y/M/D, M/D/Y, D/M/Y.
- **DAYLIGHT SAVING** – Use the ▲ and/or ▼ buttons to enable or disable automatic daylight saving time correction (ON/OFF). When set to ON, press **ENTER** to open to a submenu to set the start and end time.

The example above shows that daylight saving time is setup to begin on the 4th Sunday of March and end on the 4th Sunday of October. During that period, system time will increase by one hour.

After setting the DAYLIGHT SAVINGS time parameters, press **MENU** to exit.

4.4.5   Setting the date and time

Before using your DVR, set the current date and time. All recorded data is time stamped.

⚠ **CAUTION**   *DO NOT change the date or time of your DVR after recording anything. Otherwise, the data recorded will be disordered and it will be difficult to find information you may be searching for. If the date or time is changed, clear all HDD data before recording again.*

NOTE   *After setting the date and time for the first time leave the DVR powered on for at least 48 hours. This helps prevent DVR time from resetting after disconnecting power from the unit. If the DVR time resets after a power loss, the internal battery may be expended. See "DVR Battery Replacement" in the appendix.*

1.   On the **QUICK START** menu, use the ▼ directional button on the front panel to move to the 🗓 (Date) icon. Press ▶ to select the **DATE** option.

2.   Use the ▶, ◀, ▲ and ▼ directional buttons to set the date, time, and daylight saving time option in this menu.

3.   Press **MENU** to confirm your selection.

4.   If an option to clear the HDD appears, choose **YES** then press **ENTER**.

4.5 ADVANCE CONFIG

NOTE	The menu displays shown herein are for a 16-channel DVR. Displays for 8- and 4-channel units differ slightly.

Press **MENU** and enter the password to open the **QUICK START** menu. Press the ▼ button repeatedly to open the **ADVANCE CONFIG** menu. In the **ADVANCED CONFIG** menu, you can setup the CAMERA/DETECTION/ALERT/NETWORK/SNTP/DISPLAY/RECORD/REMOTE configuration.
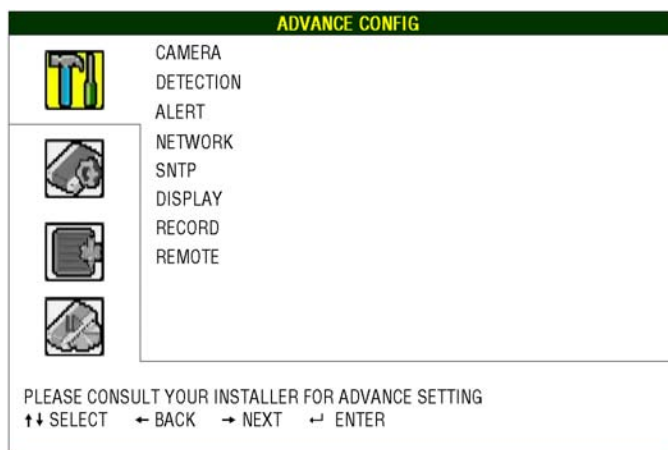
4.5.1 CAMERA menu

In the CAMERA submenu, you can name the camera channel, adjust the video quality, and enable recording of the channel.

CAMERA						
TITLE	BRIG	CONT	SATU	HUE	COV.	REC
CH1	128	098	128	128	OFF	ON
CH2	128	098	128	128	OFF	ON
CH3	128	098	128	128	OFF	ON
CH4	128	098	128	128	OFF	ON
CH5	128	098	128	128	OFF	ON
CH6	128	098	128	128	OFF	ON
CH7	128	098	128	128	OFF	ON
CH8	128	098	128	128	OFF	ON
CH9	128	098	128	128	OFF	ON
CH10	128	098	128	128	OFF	ON
NEXT						

PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING

↑↓ SELECT   ← BACK   → NEXT   ↵ ENTER

CAMERA submenu items are described below. While changing the camera setting, you can see the affect on the camera image.

- **TITLE** – The name of the camera channel. The default title is "CH" and the channel number. Move to the camera title you want to change. then press **ENTER** to open the character selection screen. Camera names can have up to six characters (alphanumeric characters and some symbols).
- **BRIG/CONT/SATU/HUE** – Set the brightness/contrast/saturation/hue of each camera channel. The default value of CONT (contrast) is 098, all other settings default to 128. For each setting, the value is adjustable from 0 to 255.
- **COV** – Set to ON to mask the channel when recording. When this function is active, COV (covert) is shown on the channel screen.
- **REC** – set to ON to enable recording for the selected channel. When this function is active, the icon appears on the live channel screen.

4.5.2   DETECTION

Move to **DETECTION**, then press **ENTER** to open the **DETECTION** submenu. This submenu includes:

- **TITLE** – The name of the camera channel. This item can be set in the CAMERA submenu.
- **DET** – Set to ON, or OFF to disable motion detection.
- **AREA** – Press **ENTER** to select the detection area. You will see screens similar to the following. Pink blocks represent the area not being monitored; clear blocks represent areas monitored for motion detection. There are two different methods to set the detection area depending on the model you have.

Table 2. Detection area setup

Transparent block indicates an area monitored for detection.

Press **ENTER** to confirm the start area.

Use the ◀ and/or ▶ buttons to choose the width of the detection area.

Use the ▲ and/or ▼ buttons to choose the height of the area.

You can also set up multi-detection area.

When any movement is detected, the grids are flashing.

- **LS** – Level of Sensitivity (on selected models). Use **LS** to set the sensitivity for comparing two different images. A small value represents a high sensitivity for motion detection.

- **SS** – Spatial Sensitivity (on selected models). Use SS to set the sensitivity for detecting the size of one object (the number of the grids) on the screen. A small value represents a higher sensitivity for motion detection.

NOTE	*The SS number represents the least number of blocks in which motion is detected for the system to trigger recording. For example, if SS is 05 and motion is detected in 5 or more blocks, a record trigger will occur. The default SS value is 03.*

- **TS** – Time of Sensitivity (on selected models). TS represents how long an object stays in the detection area before triggering a recording. Depending on the model, one of the following options is used:
  - Select a value. A small value represents a high sensitivity for motion detection.
  - Select either **HIGH** or **NORMAL**.
- **RE** – Reference (on selected models). RE sets a reference for detection. With the default value of 10, the DVR will compare 10 continuous images at one time using the parameters LS, SS, and TS.
- **ALARM** (selected models). Select **N.C.** (normally closed) or **N.O.** (normally open) to match the alarm switch design, or select **OFF** (default).

4.5.3   Alert

Use this menu to enable audible alerts when various system conditions occur. Move to **ALERT** then press **ENTER** to open the ALERT menu.

ALERT	
EXT. ALERT	ON
INT. BUZZER	ON
KEY BUZZER	ON
VLOSS BUZZER	ON
MOTION BUZZER	ON
ALARM BUZZER	ON
HDD BUZZER	ON
ALARM DURATION (SEC)	05
HDD NEARLY FULL (GB)	05
PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING	
↑↓ SELECT ← BACK → NEXT ↵ ENTER	

The submenu items are described below:

- **EXT. ALERT** – Select ON or OFF to enable or disable a sound when any external alarm is triggered.
- **INT. BUZZER** – Select ON or OFF to enable or disable a sound for all internal conditions: KEY, VLOSS, MOTION BUZZER, and ALARM. When INT. BUZZER is ON, KEY BUZZER, VLOSS BUZZER, MOTION BUZZER, and ALARM BUZZER can individually be set to ON or OFF.
  - **KEY BUZZER** – Set ON or OFF to enable or disable a sound when pressing the buttons on the front panel.
  - **VLOSS BUZZER** – Set ON/OFF to enable/disable a sound when video loss happened.
  - **MOTION BUZZER** – Set ON/OFF to enable/disable a sound when any motion alarm is sensed.
  - **ALARM BUZZER** – Set ON/OFF to enable/disable a sound when any internal alarm is sensed.
  - **HDD BUZZER** – Set ON/OFF to enable/disable a sound when the HDD remaining capacity reaches to the value set in HDD NEARLY FULL (GB).
  - **ALARM DURATION (SEC)** – Press the ▲ and/or ▼ buttons to set the duration time of alarm recording in second (5/10/20/40).
  - **HDD NEARLY FULL (GB)** – If HDD BUZZER is ON, press the ▲ and/or ▼ buttons to select the HDD free space threshold at which the alert will occur. Values are 5, 10, 15, or 20 GB.

4.5.4   Network

Use this menu to setup network TCP/IP parameters. Move to **NETWORK** then press **ENTER** to open the submenu. The **NETWORK** screen shows the current network settings. Submenus show parameters relevant to the NETWORK TYPE selected. Options are STATIC, DHCP, or PPOE.

NETWORK	
NETWORK TYPE	STATIC
IP	192 . 168 . 001 . 080
GATEWAY	192 . 168 . 001 . 080
NETMASK	255 . 255 . 255 . 000
PRIMARY DNS	168 . 095 . 001 . 001
SECONDARY DNS	139 . 175 . 055 . 244
PORT	0080

PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING
↑↓ SELECT   ← BACK   → NEXT   ↵ ENTER

4.5.4.1   STATIC NETWORK menu

NETWORK TYPE = STATIC opens the STATIC submenu with the following options.

- **IP**, **GATEWAY**, and **NETMASK** – Obtain this information from your ISP (Internet Service Provider) and enter it into these fields.
- **PRIMARY DNS/ SECONDARY DNS** – Enter the IP address of the DNS suggested by your ISP.
- **PORT** – The valid number ranges from 1 to 9999. The default value is 80, the TCP port typically used by HTTP. For added flexibility and security, it may be preferable to use a different port number.

See the example below:

```
                            STATIC
NETWORK TYPE                                    STATIC
IP                                  192 . 168 . 001 . 080
GATEWAY                             192 . 168 . 001 . 080
NETMASK                            255 . 255 . 255 . 000
PRIMARY DNS                        168 . 095 . 001 . 001
SECONDARY DNS                     139 . 175 . 055 . 244
PORT                                              0080




PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING
↑↓ SELECT    ← BACK    → NEXT    ↵ ENTER
```

4.5.4.2   PPOE NETWORK menu

NETWORK TYPE = PPPOE opens the PPPOE submenu with the following options.

- **USER NAME/PASSWORD** – Enter the username and password setup by your ISP (Internet Service Provider).
- **PRIMARY DNS/SECONDARY DNS** – Enter the IP address of the domain name server (DNS) obtained from your ISP.
- **PORT** – The valid number ranges from 1 to 9999. The default value is 80, the TCP port typically used by HTTP. For added flexibility and security, it may be preferable to use a different port number.

See the example below:

```
╔══════════════════════════════════════════════════════╗
║                         PPPOE                          ║
╠══════════════════════════════════════════════════════╣
  NETWORK TYPE                                      PPPOE
  USER NAME                                       ac123456
  PASSWORD                                       tech123456
  IP                                     000 . 000 . 000 . 000
  GATEWAY                                000 . 000 . 000 . 000
  NETMASK                                000 . 000 . 000 . 000
  PRIMARY DNS                            168 . 095 . 001 . 001
  SECONDARY DNS                          139 . 175 . 055 . 244
  PORT                                                0080


  PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING
  ↑↓ SELECT    ← BACK    → NEXT    ↵ ENTER
```

NOTE	*The PPPOE function requires a username and password subscribed from one ISP, and a DDNS account to transform the dynamic IP corresponding to a specific Hostname.*

NETWORK TYPE = DHCP opens the DHCP submenu with the following options.

- **NETWORK TYPE** – Select DHCP.
- **DNS** (PRIMARY DNS/SECONDARY DNS) – Enter the IP address of the domain name server obtained from your ISP (Internet Service Provider).
- **PORT** – The valid number ranges from 1 to 9999. The default value is 80. Typically, the TCP port used by HTTP is 80. In some network configurations, it is preferable to set a different port number for added flexibility or security.

See the example below:

```
╔══════════════════════════════════════════════════════╗
║                         DHCP                           ║
╠══════════════════════════════════════════════════════╣
  NETWORK TYPE                                       DHCP
  IP                                     000 . 000 . 000 . 000
  GATEWAY                                000 . 000 . 000 . 000
  NETMASK                                000 . 000 . 000 . 000
  PRIMARY DNS                            168 . 095 . 001 . 001
  SECONDARY DNS                          139 . 175 . 055 . 244
  PORT                                                0080


  PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING
  ↑↓ SELECT    ← BACK    → NEXT    ↵ ENTER
```

> **NOTE** *The DHCP function must be supported by a router or a cable modem network with DHCP services and a DDNS service to transform the dynamic IP address to a specific Hostname.*

4.5.5   SNTP

Use this menu to synchronize your DVR time with networked computer systems. Move to **SNTP** then press **ENTER** to open the submenu. The **SNTP** screen shows the current settings.

> **NOTE** *Before using this feature, setup your DVR for internet access.*

```
                            SNTP
GMT                          (GMT 06:00) CENTRAL AMIERICA
NTP SERVER                                   time.nist.gov
SYNC PERIOD                                          DAILY


PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING
↑↓ SELECT    ← BACK    → NEXT    ↵ ENTER
```

The submenu parameters include:

- **GMT** – Select your time zone.
- **NTP SERVER** – Set to the server you prefer to use.
- **SYNC PERIOD** – Select to synchronize the DVR time DAILY, or turn this function off (OFF).

4.5.6   DISPLAY

Use this menu to setup the display properties. Move to **DISPLAY** then press **ENTER** to open the submenu. The **DISPLAY** screen shows the current settings.

DISPLAY	
DE-INTERLACE	ON
QUAD DWELL DURATION (SEC)	03
FULL SCREEN DWELL DURATION (SEC)	03
VGA OUTPUT	1024 x 768
DISPLAY COVERT	ON
HDD DISPLAY MODE	SIZE
PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING	
↑↓ SELECT ← BACK → NEXT ↵ ENTER	

The submenu parameters include:

- **DE-INTERLACE** – Select ON or OFF to enable or disable the de-interlace function.

> **NOTE** *If you set the recording image size as FRAME, set DE-INTERLACE to ON. If you set the recording image size as CIF, set DE INTERLACE to OFF.*

- **QUAD DWELL DURATION (SEC)** (selected models) – Set the quad dwell duration time to 3, 5, 10, or 15 seconds.
- **FULL SCREEN DWELL DURATION (SEC)** – Set the full screen dwell duration time to 3, 5, 10, or 15 seconds.
- **VGA OUTPUT** – Select the VGA output resolution. Options include: 800 x 600 / 1024 x 768 (default) / 1280 x 1024 / 1440 x 900 / 1400 x 1050 / 1680 x 1050 / 1600 x 1200.

> **NOTE** *For the best image quality on your monitor, make sure that the selected DVR VGA output resolution is supported by your monitor, and the monitor is set to that resolution.*

If the image is not positioned or scaled properly, make adjustments to the monitor settings. Refer to your monitor user manual.

- **DISPLAY COVERT** – Select ON or OFF to display or hide the wording COV when covert recording is activated on the CAMERA channel.
- **HDD DISPLAY MODE** – Select SIZE to show the remaining HDD capacity (in GB) for recording, or TIME to show the remaining recording time.

4.5.7   RECORD

Use this menu to setup the record features of the DVR. Move to **RECORD**, then press **ENTER** to open the submenu. The RECORD screen shows the current settings.

```
                          RECORD
MANUAL RECORD ENABLE                          ON
EVENT RECORD ENABLE                           ON
TIMER RECORD ENABLE                           ON
EVENT RECORD IPS                              100
TIMER RECORD IPS                              100
OVERWRITE                                     ON
EVENT RECORD ALL CHANNELS                     ON
KEEP DATA LIMIT (DAYS)                        07


PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING
↑↓ SELECT    ← BACK   → NEXT    ↵ ENTER
```

Submenu parameters include:

- **MANUAL RECORD ENABLE** – Set the manual recording function ON or OFF.
- **EVENT RECORD ENABLE** – Set the event recording function ON or OFF.
- **TIMER RECORD ENABLE** – Set the timer recording function ON or OFF.
- **EVENT RECORD IPS** – Select the images per second (IPS) for EVENT RECORD (recording that is triggered by an alarm or motion detection).

NOTE   *Different DVR models can record at different rates. See "Specifications".*

- **TIMER RECORD IPS** – Select the IPS for TIMER RECORD (scheduled recording).
- **OVERWRITE** – Select ON to overwrite previous recorded data in your HDD when the HDD is full. When this function is ON and the HDD is full, the DVR will clear the oldest 8 GB data without notice to continue recording.
- **EVENT RECORD ALL CHANNELS** – Select to record all channels (ON) or record the channel with an event only (OFF).
- **KEEP DATA LIMITS (DAYS)** – Assign the maximum number of days to keep recorded data (01 to 31). Data older than the specified number of days will be removed. Select OFF to disable this feature.

4.5.8   REMOTE

Use this menu to setup remote devices (cameras, etc.). Move to **REMOTE**, then press **ENTER** to open the submenu. The **REMOTE** screen shows the current settings.

TITLE	DEVICE	ID	PROTOCOL	RATE
REMOTE				
CH1	PTZ	000	NORMAL	2400
CH2	CAMERA	000	NORMAL	2400
CH3	CAMERA	000	NORMAL	2400
CH4	CAMERA	000	NORMAL	2400
CH5	CAMERA	000	NORMAL	2400
CH6	CAMERA	000	NORMAL	2400
CH7	CAMERA	000	NORMAL	2400
CH8	CAMERA	000	NORMAL	2400
CH9	CAMERA	000	NORMAL	2400
CH10	CAMERA	000	NORMAL	2400
NEXT				

PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING
↑↓ SELECT   ← BACK   → NEXT   ←ENTER

Submenu parameters include:

- **TITLE** – Show the title of each channel set in the CAMERA menu.
- **DEVICE** – Select the type of device (CAMERA/PTZ) on the channel.
- **ID** – Set the ID number (0 ~ 255) for a PTZ camera. After connecting to a PTZ camera, the default ID of the PTZ camera will be shown on the screen.
- **PROTOCOL** – Select NORMAL (Supercircuits protocol), P-D (PELCO-D), or P-P (PELCO-P) protocol.
- **RATE** – Set the baud rate of each channel (2400/4800/9600/19200/57600/115200) to match the setting in the camera.

4.5.9   PTZ camera setup

a. In the REMOTE submenu, highlight the channel where the speed dome camera is attached.

b. In the **DEVICE** column, select **PTZ** (for the speed dome camera).

c. Move to the **ID** column and set the **ID** number of the camera.

d. In the **PROTOCOL** column select **P-D** (for Pelco-D), **P-P** (for Pelco-P), or **NORMAL** for all other protocols.

e. Set the baud rate to the value configured in the camera.

f. Press **MENU** to confirm your entries and exit the menu.

4.6   SYSTEM INFO

Use this menu to setup several system level parameters including password and video format, and to initiate a firmware upgrade. Move to **SYSTEM INFO**, then press **ENTER** to open this submenu. The SYSTEM INFO screen shows the current settings.

SYSTEM INFO	
SERIAL TYPE	RS485
BAUD RATE	2400
HOST ID	0
PASSWORD	XXXX
RESET DEFAULT	RESET
CLEAR HDD	HDD-MASTER-1
UPGRADE	START
R.E.T.R. (MIN)	05
AUTO KEYLOCK (SEC)	NEVER
LANGUAGE	ENGLISH
VIDEO FORMAT	NTSC
VERSION	1083-1028-1009-1013-02-0000

PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING
↑↓ SELECT   ← BACK   → NEXT   ↵ ENTER

Submenu parameters include:

- **SERIAL TYPE** – Serial communications methodology of the DVR (RS485).
- **BAUD RATE** – Set the baud rate of the DVR. Options are 2400, 9600, 19200, 38400, 57600, or 115200.
- **HOST ID** – Set the ID of the DVR (0 ~ 254).
- **PASSWORD** – Set the password for accessing the DVR system. Passwords can have up to 4 digits.
- **RESET DEFAULT** – Press **ENTER** to reset all parameters to the default values. When resetting parameters, select YES to confirm or NO to cancel.
- **CLEAR HDD** – Select the HDD. Press **ENTER,** then select **YES** to confirm to clear HDD or NO to cancel.
- **UPGRADE** – For upgrading firmware/OSD. See "Firmware / OSD upgrade" for more information.
- **R.E.T.R. (MIN)** – Remote Event Trigger Recording (selected models). Select the timeout after which the R.E.T.R. function will be activated. Options include 03, 05, 10, or 30 seconds.
  R.E.T.R. On – Press the **R.E.T.R.** key on the IR remote control to enable the timeout function. Enter the password, and the R.E.T.R. delay icon (green background) appears. When the RETR function is activated, the R.E.T.R. On icon (red background) appears.
  R.E.T.R. Off – Press any key (except POWER) and enter the password to turn off R.E.T.R.
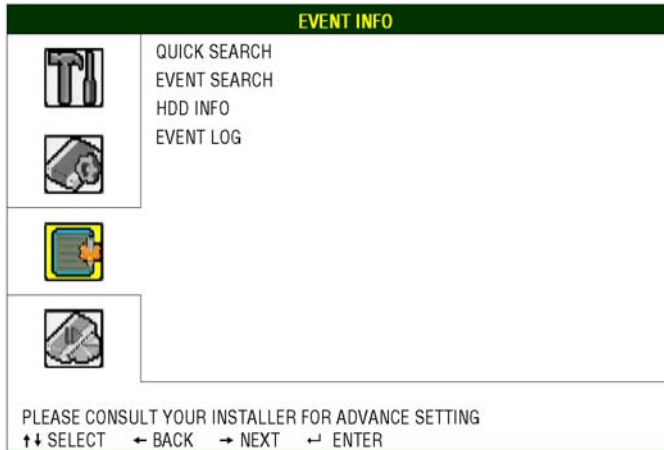
- **AUTO KEYLOCK** – Set the time-out in second after which the key lock function is activated. Options are Never, 10 seconds, 30 seconds, or 60 seconds.
- **LANGUAGE** – Select the language of the OSD.
- **VIDEO FORMAT** – NTSC only.
- **VERSION** – The firmware version installed.

4.6.1   Setting the password

1. In the System Info submenu, press the ▶ button once, then press the ▲ or ▼ buttons until **PASSWORD** is highlighted.

2. Press the ▶ button once, then press **ENTER**.

3. Enter the OLD PASSWORD as described above.

4. Enter your NEW PASSWORD.

5. Press **MENU** to exit the configuration displays.

4.7   EVENT INFO

Use this menu to search for event information. Move to the **EVENT INFO** icon, then press **ENTER** to open the TIME SEARCH (QUICK SEARCH) submenu. The **EVENT INFO** screen shows the current settings. Selecting any of the options on this screen opens a submenu.

EVENT INFO

QUICK SEARCH
EVENT SEARCH
HDD INFO
EVENT LOG

PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING
↑↓ SELECT   ← BACK   → NEXT   ↵ ENTER

4.7.1   Quick Search

Use this menu to search for events by time and play the file you find. Move to **QUICK SEARCH**, then press **ENTER** to open the submenu.

TIME SEARCH

DATE   2008 / APR / 24   22 : 48 : 00
SEARCH HDD   ALL HDD
START

PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING
↑↓ SELECT   ← BACK   → NEXT   ↵ ENTER
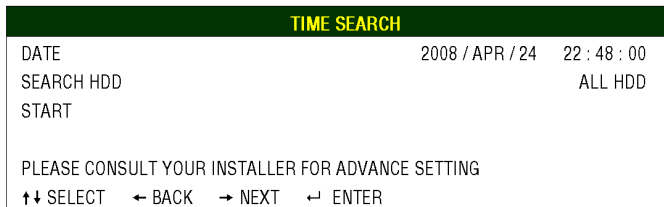
Submenu parameters include:

- **DATE** – Select the time period (YEAR / MONTH / DAY HOUR : MIN : SEC) you want to search for.
- **SEARCH HDD** – If there is more than one HDD installed, select the HDD you want to search. Select the HDD using the ▲ and/or ▼ buttons .
- **START** – Move to START then press **ENTER** to initiate the search and playback the recorded files.

4.7.2   Event Search

Use this menu to search for events by event type. Move to EVENT SEARCH, then press **ENTER** to open the submenu.

```
                    EVENT SEARCH
  DATE                      2008 / JUN / 17   22 : 48 : 00
  CHANNEL                                            01
  EVENT                                          MOTION
  SEARCH HDD                                    ALL HDD
  START

  PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING
  ↑↓ SELECT    ← BACK   → NEXT   ↵ ENTER
```

Submenu parameters include:

- **DATE** – Set the date and time of the event you want to search for.
- **CHANNEL** – Press the ▲ and/or ▼ buttons to select the channel.
- **EVENT** – Select the event type: MOTION or ALARM.
- **SEARCH** – Change to the HDD you want to search in if the DVR has more than one HDD. Use the ▲ and/or ▼ buttons to select the HDD.
- **START** – Move to **START** then press **ENTER** to search and playback the recorded files.

4.7.3   HDD INFO

Use this menu to display the configuration of the HDDs installed in the DVR.

```
                         HDD INFO
  HDD NUM        HDD SIZE (GB)    HDD NUM        HDD SIZE (GB)
  HDD–MASTER–1   233              HDD–SLAVE–1    NO HDD
  HDD–MASTER–2   NO HDD           DISK-RW        NO DISK


  PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING
  ↑↓ SELECT    ← BACK   → NEXT   ↵ ENTER
```

Use this menu to view the event log. Page forward (NEXT) and back (PREV) through the log, or clear (CLEAN) the log by selecting the on-screen functions.

4.7.4   EVENT LOG

Use this menu to view the event log. Page forward (NEXT) and back (PREV) through the log, or clear (CLEAN) the log by selecting the on-screen functions.

```
                              EVENT LOG
    EVENT                  TIME                        COMMENT
    NET LOGIN              2008 / APR / 24    10:36:50
    NET LOGIN              2008 / APR / 24    10:33:12
    NET LOGIN              2008 / APR / 24    10:28:15
    KEY UNLOCK             2008 / APR / 24    10:27:14
    VLOSS                  2008 / APR / 24    10:23:34             04
    VLOSS                  2008 / APR / 24    10:23:34             03
    VLOSS                  2008 / APR / 24    10:23:34             02
    VLOSS                  2008 / APR / 24    10:23:34             01
    POWER ON               2008 / APR / 24    10:23:30
    KEY UNLOCK             2008 / APR / 23    14:37:30


    PREV          NEXT          CLEAN


    PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING
    ↑↓ SELECT     ← BACK     → NEXT     ↵ ENTER
```

4.8   BACKUP

Press **MENU** and go to the BACKUP icon to open the **BACKUP** submenu. Clicking **USB BACKUP** or **DISK BACKUP** opens a submenu.

```
                            BACKUP
          USB BACKUP
          DISK BACKUP








    PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING
    ↑↓ SELECT     ← BACK     → NEXT     ↵ ENTER
```
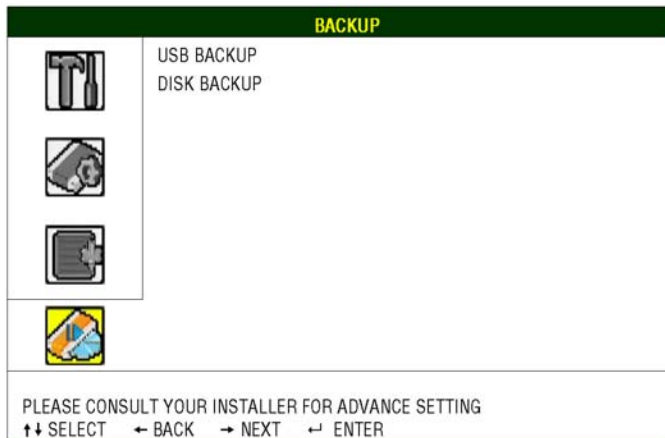
4.8.1 USB BACKUP

Video/audio files can be copied to a USB device, such as a USB flash memory drive, for archiving. Move to USB BACKUP, then press **ENTER** to open the **USB BACKUP** submenu.

```
                              USB BACKUP
   START TIME          2008 / APR / 24                13:00:05
   END TIME            2008 / APR / 24                13:10:05
   AVAILABLE SIZE                                     1960.0MB
   CHANNEL             ☑   01   ☐   02   ☐   03   ☐   04
                       ☑   05   ☐   06   ☐   07   ☐   08
                       ☑   09   ☐   10   ☐   11   ☐   12
                       ☑   13   ☐   14   ☐   15   ☐   16
   HDD NUM                                            ALL HDD
   START

   PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTING
   ↑↓ SELECT    ← BACK    → NEXT    ↵ ENTER
```

Before making USB backup, verify that:

1. The USB flash drive is supported by your DVR (see Compatible USB Flash Drive). If it is not compatible, the message USB ERROR will appear.

2. The USB flash drive must be formatted as FAT32. If not, use a computer to format it for FAT32.

3. Erase existing files from the USB flash drive before using it to backup DVR data.

> **NOTE**   *When USB backup is in progress, do not use the DVR for other operations.*

> **NOTE**   *You can backup up to 2 GB of video data at one time. To backup more data, set the time and channel(s) you want, and start the USB backup again.*

Submenu parameters include:

•   **START TIME** – Select the start time of the backup data.
•   **END TIME** – Select the end time of the backup data.
•   **AVAILABLE SIZE** – Display the available capacity of the inserted USB flash drive.

- **CHANNEL** – Select channels by pressing **ENTER** to toggle the icon in front of the channel number.
  - The ☑ (checked box) icon indicates that this channel is selected for backup.
  - The ☐ icon indicates that this channel is not selected for backup.
- **HDD NUM** – Press **ENTER** to select the HDD containing the data you need.
- **START** – Press **ENTER** to start copying data to the USB flash drive.

4.8.2   DISK BACKUP (selected models)

Video/audio files can be copied to the CD or DVD drive installed in the DVR. In the BACKUP menu, move to **DISK BACKUP**, then press **ENTER** to open the submenu.

```
                         DISK BACKUP
  START TIME        2008 / APR / 24              19:00:05
  END TIME          2008 / APR / 24              21:00:05
  AVAILABLE SIZE                                 3.79 GB
  CHANNEL           ☑  01    ☐  02    ☐  03    ☐  04
                    ☑  05    ☐  06    ☐  07    ☐  08
                    ☑  09    ☐  10    ☐  11    ☐  12
                    ☑  13    ☐  14    ☐  15    ☐  16
  HDD NUM                                        ALL HDD
  START

  PLEASE CONSULT YOUR INSTALLER FOR ADVANCE SETTINGS
  ↑↓ SELECT    ← BACK    → NEXT    ↵ ENTER
```

Submenu parameters are similar to the USB BACKUP parameters. Included are:

- **START TIME** – Select the start time of the backup data.
- **END TIME** – Select the end time of the backup data.
- **AVAILABLE SIZE** – Display the available capacity in the CD/DVD disk media.
- **CHANNEL** – Select channels by pressing **ENTER** to change the symbol in front of the channel number.
  - The ☑ (checked box) icon indicates that this channel is selected for backup.
  - The ☐ icon indicates that this channel is not selected for backup.
- **HDD NUM** – Press **ENTER** to select the HDD containing the data you need.
- **START** – Press **ENTER** to start copying data to the CD/DVD.

To perform a disk backup, follow the general procedure:

1. Press **EJECT** to open the disk tray. Insert a CD or DVD into the DVD writer then press **EJECT** again to close the disk tray.

2.   Press **MENU**, go to the BACKUP menu, and select **DISK BACKUP**.

3.   Set the start time, end time, and select the channels and HDD to backup.

4.   Highlight **START** then press **ENTER** to begin the backup process. A completion indicator will appear.

NOTE	*The system can backup up to 41 files to a CD or DVD. During the backup process, a file player is copied to the disk and the message BACKUP PLAYER is shown on the screen.*

5.   When the backup process is finished, BACKUP SUCCESS appears. Press **EJECT** to open the disk tray and remove the disk.

NOTE	*When the backup disk is used in a PC, install the PLAYER.exe file copied to the disk, if necessary, to view the video files.*

SECTION 5
Basic Operation

5.1 Live page

On the Live page, you can see a 1- , 4-, 9-, or 16-cut screen with status icons. See the following picture.
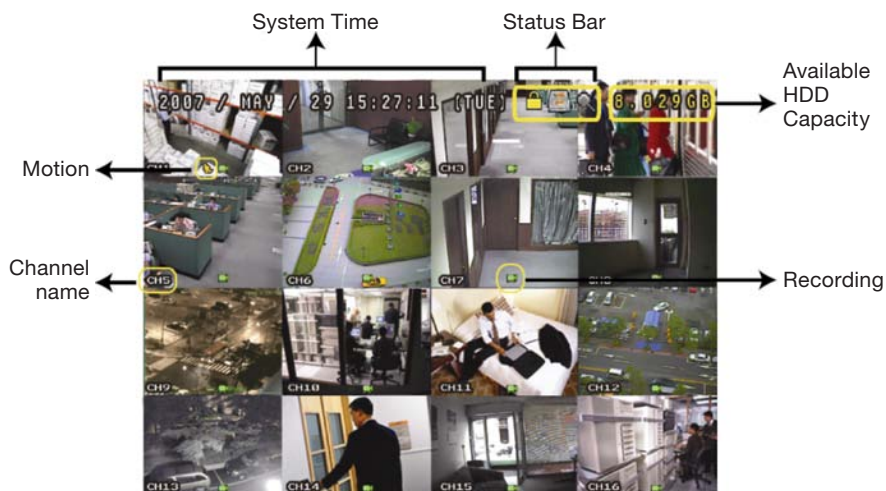
Table 3. Live page icon definitions

Icon	Function	Icon	Function	Icon	Function	Icon	Function
	Key lock		Key unlock		Digital zoom mode		Digital zoom unselected
	The 1st live audio channel		The 2nd live audio channel		The 3rd live audio channel		The 4th live audio channel
	The 1st play-back audio channel		The 2nd play-back audio channel		The 3rd playback audio channel		The 4th playback audio channel
	Audio channel unselected		Timer recording		Motion		Recording
	Alarm (selected models)		HDD over-write		R.E.T.R. ON (selected models)		R.E.T.R. Delay (selected models)

5.1.1   Recording icons

1. **Continuous recording** – By default, the record icon appears when the DVR is powered on and an HDD is installed.

2. **Event recording** – When motion detection is sensed or an alarm is activated, the motion icon or alarm icon appears.

3. **Timer recording icon** – When the record timer is activated, the Timer icon appears.

NOTE	*A new log is added in the system log when HDD data is overwritten or when recording starts after the DVR reboots.*

4. **HDD Overwritten Icon** – The HDD overwritten function can be set to ON/OFF. When this function is enabled (ON), the icon appears.

NOTE	*When the HDD overwrite function is activated, this device will overwrite the oldest 8 GB of data to free storage space for new data. No notice is provided when data is overwritten.*

5.2   Playback

Press **PLAY** on the DVR control panel to play the last recorded video.

NOTE	*There must be at least 8192 images of recorded data for playback to work properly. If not, the device will stop playback. For example, if the IPS is set to 30, the recording time should be at least 274 seconds (8192 images at 30 IPS) for the playback to work properly.*

NOTE	*Playback at the local site may not be smooth if remote surveillance is occurring simultaneously.*

- **Fast Forward/Fast Rewind** – You can increase the speed for fast forward and rewind. In Playback mode:
  - Press **FF** once to play at 4X speed forward; press twice to play at 8X speed, etc. The maximum forward speed is 32X.
  - Press **REW** once to play in reverse at 4X speed; press twice to play in reverse at 8X speed, etc. The maximum reverse speed is 32X.
- **Pause/Image Jog** – Press **PAUSE** to pause playback. In the Pause mode:
  - Press **FF** once to move one frame forward.

– Press **REW** once to move one frame backward.

- **Stop** – Pressing **STOP** during playback mode returns to live monitoring mode.
- **Slow Playback** – Press **SLOW** to move forward at 1/4X speed playback; press twice to move forward at 1/8X speed playback.
- **Audio Playback** (SLOW + ZOOM) – Press **SLOW** and **ZOOM** simultaneously to select the live sound or playback sound on the audio channel.

5.3   Key lock and unlock

- **Key Lock On** – Set the time-out after which the key lock function is activated (NEVER / 30 SEC / 60 SEC / 120 SEC). Refer to SYSTEM INFO. or press **F2** on the IR remote control to lock the keys immediately.
- **Key Lock Off** – Enter the DVR password to exit Key Lock mode.

5.4   Firmware upgrade

DVR firmware rarely needs to be upgraded. Should it be necessary, contact Supercircuits Support at 1.800.335.9777 to acquire the latest firmware. Firmware can be upgraded using a USB flash memory device, or through the Video Viewer application.

Upgrading firmware using a USB flash memory device:

1. Format the USB flash memory device as FAT32 format.

2. Obtain the upgrade file(s) from Supercircuits Support. Copy the upgrade file(s) to your USB flash memory device (do not change the file name).

3. Plug the USB flash memory device into the USB port on the front of the DVR. Wait until the DVR detects your USB flash memory device.

4. Press **MENU**, and go to the **SYSTEM INFO** menu. Select **UPGRADE** > **START**, then press **ENTER**.

5. At the confirmation query, select **YES**, then press **ENTER** to confirm the upgrade.

6. Allow the upgrade process to complete before continuing.

Upgrading firmware using the Video Viewer application:

1. Save the upgrade files on your PC (do not change the file name).

2. Start the **Video Viewer** application.

3. In the "Address Book" panel, select the IP address of your DVR (add the IP address of your DVR to the address book if necessary).

4. Click the icon to show the Update Server panel.

5. In Update Server, click the Firmware or Language tab as needed.

6. Click **Add** and select the firmware or OSD files to upgrade.

7. Click **Update Firmware** or **Update Language** to start the upgrade.

8. Allow the upgrade to complete before continuing.

5.5 Search

Search by List

Press **LIST** on the DVR control panel to open the LIST menu. Move to the item you want to view or search, then press **ENTER**.

Search by Time

Press **MENU** and open the EVENT INFO menu.

    a. Select **QUICK SEARCH,** then press **ENTER** to open the TIME SEARCH screen.

    b. Search for specific events by time (Year / Month / Day   Hour : Min) or select **HDD.**

SECTION 6
Local and Remote Operation

Your DVR can be accessed from a personal computer (PC) for remote viewing of cameras and retrieval of stored video streams. DVRs can be setup for remote viewing across a private Local Area Network (LAN) and across a Wide Area Network (WAN), such as the internet, using the Video Viewer software provided on the CD with your DVR, Microsoft® Internet Explorer® browser, and Apple® QuickTime® player, and the Apple iPhone® SC Mobile app.

6.1   Networking your DVR

Before you can access your DVR across a Local Area Network (LAN), it must be configured for the network it is attached to. Similarly, before the DVR can be accessed from the Internet (WAN), the network it is attached to must be configured to allow access to the DVR from the internet. For guidelines on setting up your DVR for LAN and WAN access, refer to Supercircuits "DVR Networking Guide" provided on the CD with your DVR, or from the DVR's product information page at **Supercircuits.com**.

6.2   Video Viewer software

Video Viewer is a central management system (CMS) software program for viewing and controlling your DVR from a PC. It includes the following features:

- Surveillance and management of up to 16 sites simultaneously
- Multiplex operations (live view, record, playback, backup and network) with intelligent motion detection functions
- Google connection for E-map application
- Pre- and post-event recording
- GUI record log and event search
- PTZ camera control

Video Viewer can be installed on the following operating systems:

- Microsoft Windows® 2000
- Microsoft Windows XP
- Microsoft Windows Vista

Before using Video Viewer, make sure that you have configured the DVR and network for LAN and/or WAN access.

6.2.1   Install Video Viewer software

To install the Video Viewer software:

1.   Place the CD supplied with your DVR into your CD-ROM or DVD-ROM drive of your PC.

2.   Open the CD in a file browser, such as Windows explorer.

3.   Find the file named **VideoViewer.exe** or **setup.exe**. Double-click on this file name to open (run) it.

4.   Follow the on-screen instructions to complete the installation. When the installation finishes, a Video Viewer shortcut icon, 📷, will appear on your PC desktop.

6.2.2   Network connection via LAN/WAN

A PC on the same LAN as the DVR, or on the internet, can be used to configure and manage the DVR. To access your DVR with Video Viewer:

1.   Double-click the Video Viewer icon on your PC desktop to open the Video Viewer control panel. By default, the "Address Book" window also opens.

2.   In the Address Book window, click the 🔲 icon (Add) in the Address Book window. Create an entry for your DVR: entry the IP address, port, user name, password, and select other parameters as need. Click **Apply**.
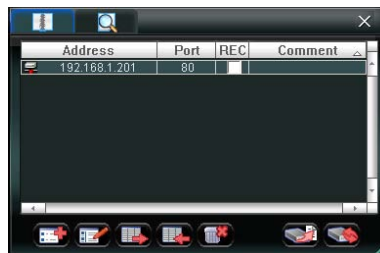
3.   In the Address Book window, double-click the entry you created. A simplified control panel view will appear.

6.2.3   Video Viewer displays

The Video Viewer simplified control panel is shown below. Clicking the Full Function Display Switch maintains the connection to the DVR and opens the Full Function Display.
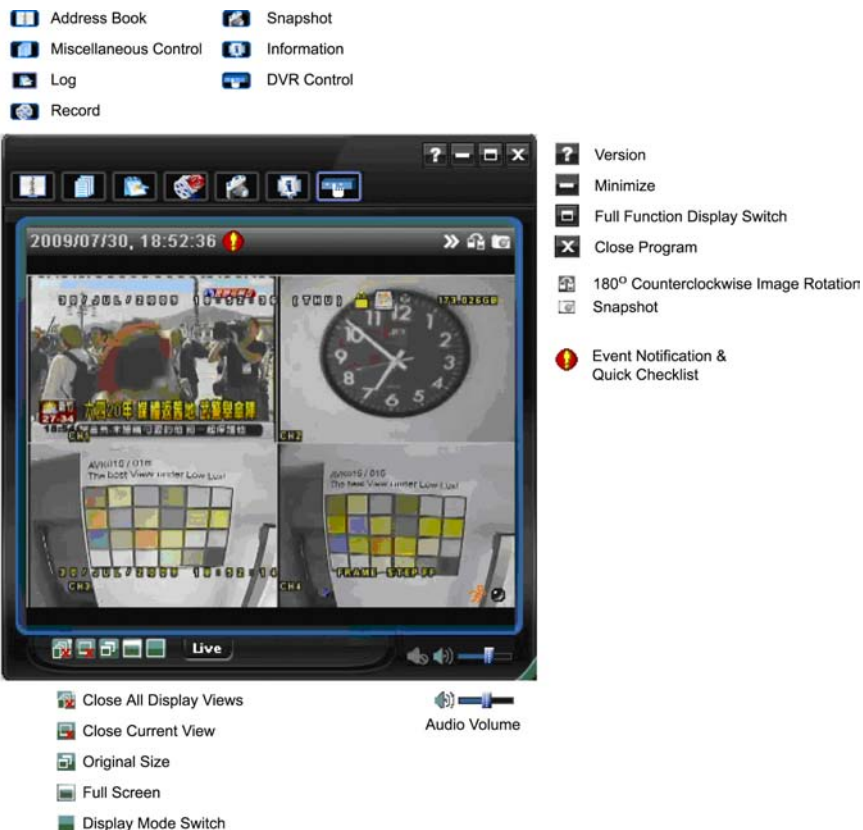
The Full Function display mode provides an enlarged view of the DVR screen and additional controls.

Table 4. Video Viewer button functions

Button		Function	Description
Simplified	**Full Function**		
		Address Book	Click to show the predefined IP addresses. You can add, remove or search IP addresses to log into a DVR remotely.

Button		Function	Description		
Simplified	Full Function				
		Miscellaneous Control		Remote Config	Click to go to the detailed DVR settings.
				Record Setting	Click to go to the detailed record settings.
				Custom Setting	Click to choose a screen language. A language change takes effect when the program is restarted.
		Log	Click to view all event and recording logs. Search log(s) by date, or playback the recording.		
		Record Record Stop	Click to start/stop manual recording.		
		Snapshot	Click to take a snapshot of the current view. Snapshots are saved in the path specified in Record Setting.		
		Information	Click to show network connection details.		
		DVR Control	Click to go to the DVR control panel to operate the DVR remotely.		

6.2.4   Operations

6.2.4.1   Record

To record events or alarms at your PC, click or and -> to go to the "Record Setting" page.
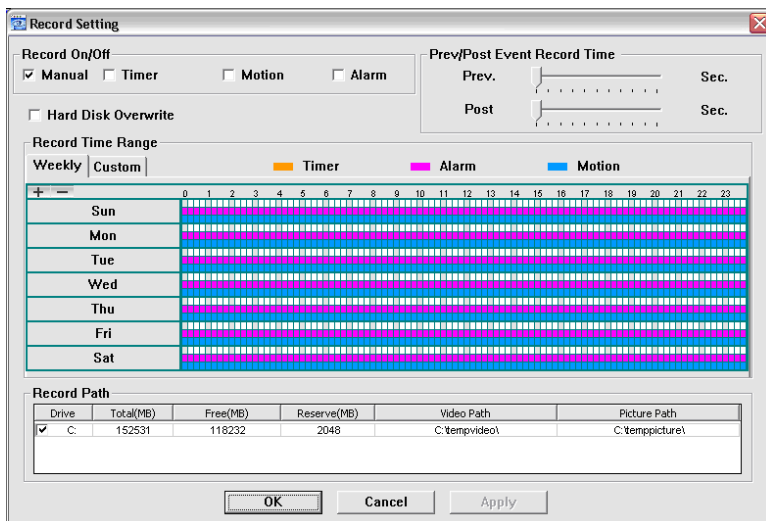
In the "Record Setting" window, you can set the following items:

- Record type
- Hard disk overwrite
- Pre- and post-alarm record time (in seconds)
- Record time range
- Recorded data storage location (Record Path)

If **Manual** is checked, click [icon] or [icon] on the main control panel to start the manual recording immediately. The recordings are saved in the location specified in Record Path. The red text **REC** indicator will be shown at the top left corner of the image display view.

If **Motion** and/or **Alarm** are checked, the recording function is enabled by Video Viewer when an event is triggered at the DVR. Recordings are saved at the location specified in the DVR configuration.

6.2.4.2 Playback

To play a recording, click [icon] or [icon], and select the **Record** or **Backup** tab. By default, a list of all recordings is shown. You can also sort event logs to speed search time.

To play a recording, select a log entry from the list and click **Play**, or double-click the entry.

6.2.4.3   Network Backup

Click -> , or click to open the Backup window. Select the time range or event for which you want to make a video backup. File(s) you backup are from the currently selected IP address and HDD.

Table 5. Video Viewer backup window parameters

| Function	Description
HDD Number/ channel	Specify the HDD number and channel associated with the video data you want.
Download by Time	In the "Start Time" and "End Time" columns specify the time range within which the video data was recorded.
Download by Event	Select an incident from the event list. The list shows all logs in the DVR from latest to earliest. - To find the events you want to see, check or uncheck the event type **System**/**Manual**/**Alarm**/**Motion**, then select the log you want. - Click "Prev. Page" or "Next Page" to page through the log list. - Click "Reload" to refresh the event list.
File Path	Assign the location where backup files are saved.
Simultaneous Playback	To view backup images while a download is in progress, select the checkbox "Simultaneous Playback". To backup images without previewing, deselect the checkbox "Simultaneous Playback". You will only see a message box indicating the total time needed, the current status, and the saving location.
Download/Cancel	Click "Download" to start or "Cancel" to discard the video backup.

6.2.5   E-Map features

Video Viewer provides network device control and management (E-Map) for up to 16 devices simultaneously. E-Map is available only when the control panel is set to full-function view.

NOTE	*Before using this feature, connect Video Viewer to the devices you want to monitor.*

6.2.5.1   Adding an E-Map group

1. If Video Viewer is in simplified view mode, click [icon] to switch the control panel to the full-function view. Click [icon] to open the E-Map page.
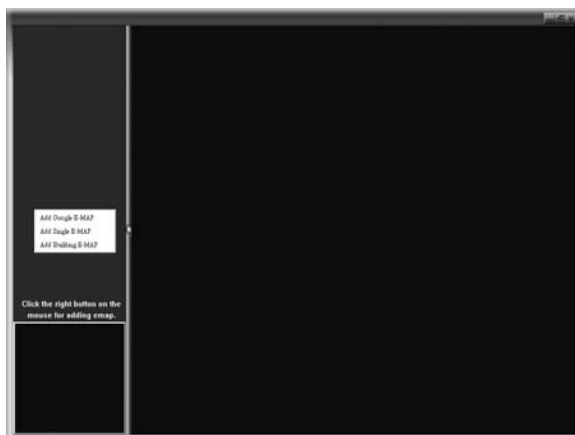

2. Right-click to open the shortcut menu in the top-left panel.

3. Select the E-Map group you want to add. There are three E-Map group types you can add: Google E MAP, single E MAP, and building E MAP.
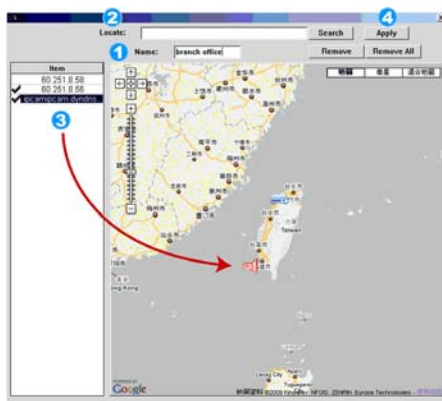
How to add a Google E-Map group:

1. Enter the name of this Google E-Map group.

2. Enter a specific address or landmark, and click "Search".
   OR
   Move to the map and drag to the location you want.

3. Click and drag the IP address to where it's located in the current level.

4. Click "Apply" to save and finish.
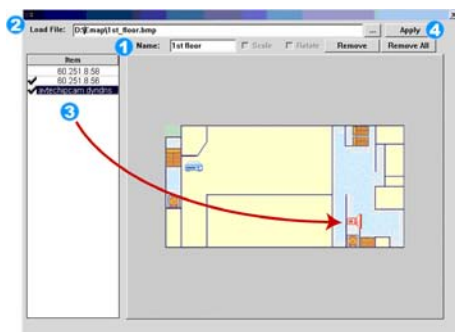
How to add a single E-Map group:

1. Enter the name of this single E-Map group.

2. Click "..." to browse the map file in BMP or JPEG.

3. Click and drag the IP address to where it's located in the current level.

4. Click "Apply" to save and finish.
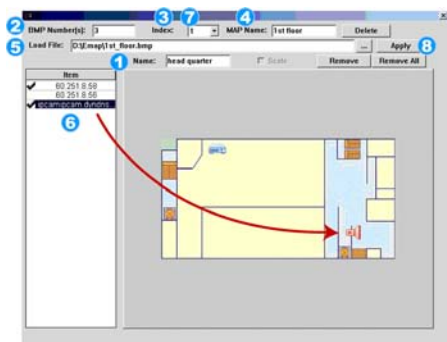
How to add a building E-Map group:

1. Enter the name of this building E-Map group.

2. Enter the total levels of this building.

3. Select the level of the building from the drop-down list.

4. Enter the name of the level.

5. Click "..." to browse the map file in BMP or JPEG.

6. Click and drag the IP address to where it's located in the current level.

7. Go back to STEP 3 to select other level of the building, and repeat from STEP 3 to 6 until the setup for all levels are finished.

8. Click "Apply" to save and finish.

4. When the E Map group is created, a tree appears on the top-left panel showing the devices you've added to this group.

Table 6. E-Map device tree icons

Icon	Description
	The connected device is camera. When selected, it is red.
	The connected device is DVR. When selected, it is red.
	This icon appears for any motion or alarm event. Double-click the device icon on the E-Map to show the live view.

6.2.5.2   Edit/remove an existing E-Map group

For Google E-Map group

To edit or remove an existing Google E-Map group, right-click on the group name to show the shortcut menu list. Select **Edit E MAP** or **Remove E MAP** as desired.

You can also add a single E Map group (**Add Single E-MAP**) or building E-Map group (**Add Building E-MAP**) into the existing Google E-Map group.
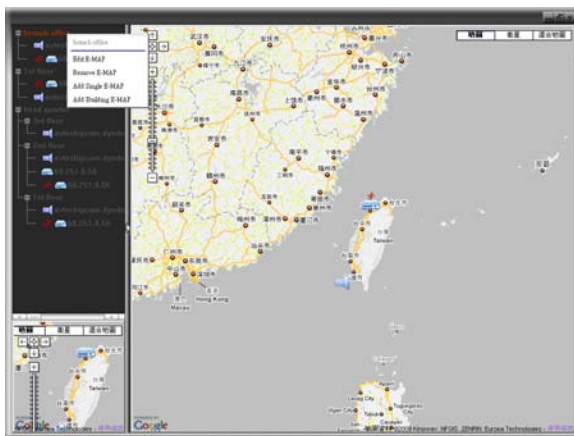
For a single E-Map group
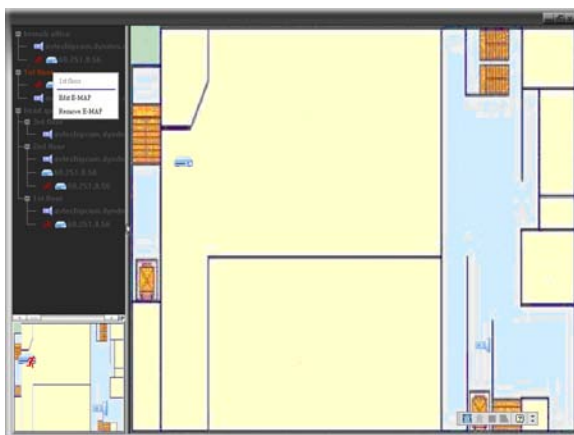
To edit or remove an existing single E-Map group, right-click on the group name to show the shortcut menu list. Select **Edit E MAP** or **Remove E-MAP** as required.
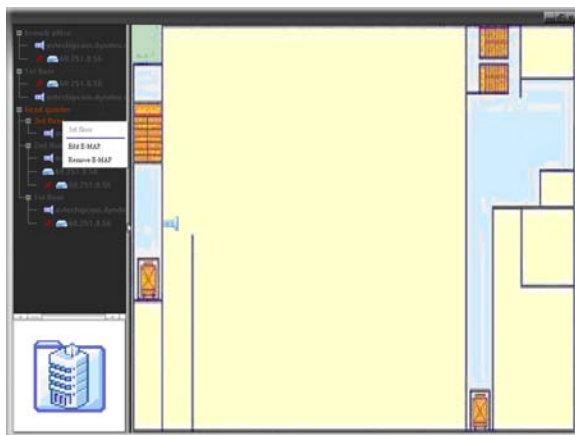

For a building E-Map group

To edit or remove an existing building E Map group, right-click on the group name to show the shortcut menu list. Select **Edit Building E MAP** or **Remove E MAP** as required.

To edit or remove a certain level of the building E Map group, right click on the level name. Select **Edit E MAP** or **Remove E MAP** as required.

6.3   Web browser

You can view the images or operate your DVR with Microsoft Internet Explorer (IE), Mozilla Firefox, or Safari web browsers. The following operating systems are supported:

- Microsoft Windows 2000
- Microsoft Windows XP
- Microsoft Windows Vista
- Mac OS® X

1.   Enter the IP address used by your DVR into the URL box on your browser then press **Enter**.

   If you are accessing your DVR with IE across a local LAN, enter the local IP address of the DVR into the URL field. For example, enter 192.168.1.201.

   If you are accessing your DVR with IE across a WAN (Internet), and the port number assigned to the DVR is NOT 80, you must include the port number with the IP address. The format is **http://ipaddress:portnum**. For example, if the IP address is 60.121.46.236 and port number is 888, enter "http://60.121.46.236:888" into the URL address box, then press **Enter**.

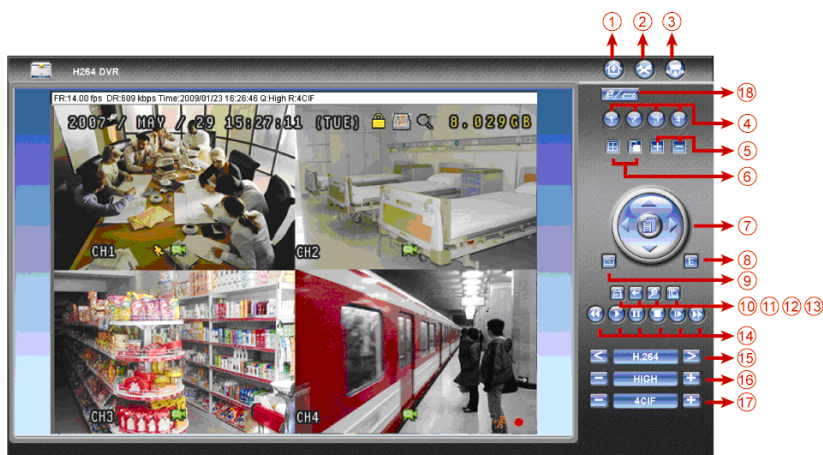2.   You will be prompted to enter the user name and password to access the DVR. Enter the user name and password for the DVR you are logging into, then click **OK**.

NOTE	*The buttons and functions described below are for a 4-channel DVR. The description for 8- and 16-channel systems is similar.*

   You will see a screen similar to the following when the login information is correct.

Table 7. Web browser button function

NO.	Function	Description
1	Home	Click [icon] to go to the main page of the DVR.
2	Config.	Click [icon] to go to the detailed DVR setting.
3	PTZ	Click [icon] to enter PTZ mode.
4	Channel Selection	[icons 1 2 3 4] Click one of the numbers to switch to the channel you want to see in full screen mode.
5	Selection	Click [+] or [−] to go to the previous/next channel, or change a setting.
6	Display Mode	Click to show 4-cut display.
		Click [icon] to display channels one by one starting with CH1. When the last channel is displayed, it will return to CH1.To exit from this mode, press any other channel display button.
7	Menu and Arrow Keys	Click to open the menu/exit the menu mode.
		[icon] / [icon] : Move up/down to select the previous/next menu or sub-menu function, or change the setting.
		[icon] / [icon] : Move left/right to the previous/next sub-menu items.
8	Event	Click [E icon] to open the playback search settings screen.

NO.	Function	Description
9	Snapshot	Click [icon] to take a snapshot of the current view and open another browser window to display the captured image.
10	Key Lock	Click [icon] to enable the DVR key lock function. To unlock the DVR, enter your password, then click Enter.
11	Enter	Click [icon] to confirm the setting, or enter your selection.
12	Digital Zoom	Click [icon] to zoom in/out the selected channel image.
13	Search	Click [icon] to open the DVR full search menu. Here you can check all the logs and select one to payback.
14	Playback control buttons	[icon] (Stop) / [icon] (Play) / [icon] (Rewind) / [icon] (Forward) / [icon] (Pause) / [icon] (Slow Playback) Rewind/Forward – Click once to move at 4X fast rewind/forward, twice to move at 8X, three times to move at 16X, and four times to move at 32X. Slow Playback – Click once to move at 4X slow playback and twice to move at 8X slow playback.
15	Web Transmission	H.264/M-JPEG/QuickTime (depending on the model you have). When "QuickTime" is selected, you are promoted to enter the user name and password to access the server of the DVR.
16	Change Quality	BEST/HIGH/NORMAL/BASIC – Click to change the image quality.
17	Change Resolution	4 CIF/CIF. Click to change the image resolution (4CIF: 704x480/CIF: 352x240)
18	Remote Independent Operation Off/On	Click it to disable/enable the network independent function.
19	Audio channel Selection	[icon] 1 2 3 4 Select the audio channel in live mode or playback mode. [icon] Indicates that no camera supporting audio recording is connected to the DVR.

6.4   Apple QuickTime player

With Apple QuickTime player you can remotely log into the DVR and view the on-screen image. The DVR image quality must be set to BEST to see the DVR screen. No DVR control features are available with Apple QuickTime.

1.   If QuickTime is not installed on your PC, go to: **http://www.apple.com/**. Download and install the free version.

2.   Open QuickTime player. In the player window, select **File** > **Open URL…**
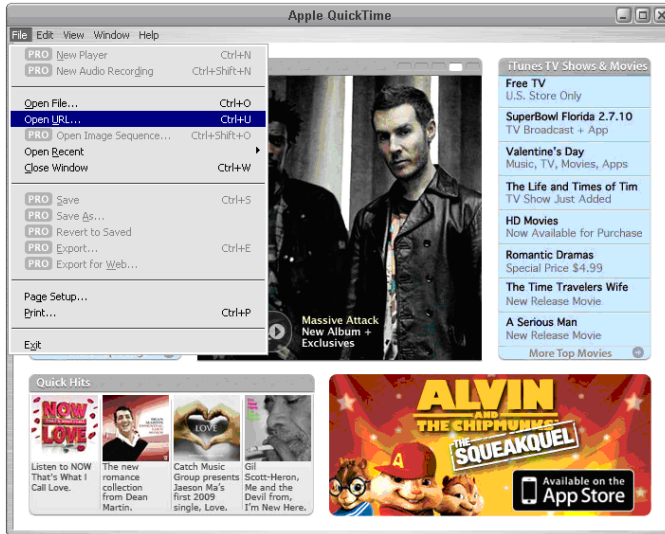
3. In the popup window, enter the Internet URL in the format **rtsp://ipaddress:portnum/live/h264** (For example, **rtsp://60.251.8.57:88/live/h264**). **ipaddress:portnum** is the IP address and port number of your DVR.
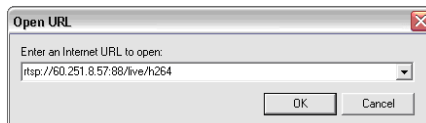
4. Click **OK** to continue.

5. In the Internet Authentication window, enter the Userid and Password for accessing your DVR, then click **OK** to continue.

> **NOTE**   *If you're not prompted to enter a Userid and Password, and the error message 10060 appears, go to Edit > Preferences > QuickTime Preferences, and select "Streaming Transport" from the drop-down list. Select "Use HTTP", and keep the port ID as 80.*

6.   When the login is successful, you will see the live view from the DVR.

6.5   SC Mobile App for iPhone

SC Mobile Phone Surveillance provides access to your DVR video and audio through an Apple® iPhone®. The application, SC Mobile, can be downloaded for free from the Apple App Store.

SC Mobile includes the following features:

- Address Book (1 entry)
- Auto playback after an event alarm is triggered
- PTZ Preset Point Setting
- Real Time Video Streaming
- Real Time Audio Streaming
- Video Quality Control
- Auto Re-login
- PTZ Hot Point Control

> **NOTE**   *The network on which your DVR is installed must be configured to allow access to the DVR through the Internet. Refer to your DVR reference manual and the Supercircuits "DVR Networking Guide" for specific guidelines for setting up your DVR on a network with Internet access.*

> **NOTE**   *To stream video data to your iPhone with the SC Mobile app, you must first connect your iPhone to a Wi-Fi network. For more information about Wi-Fi connectivity and your iPhone, refer to your user documentation and your service provider.*

6.5.1   Installation

To install SC Mobile:

1.   On your iPhone, open the **App Store**.

App
Store
Icon

2. Search for **SC Mobile**.

3. After SC Mobile is found, select it.

4. Install the application.

5. Find the SC Mobile application on your phone application display.
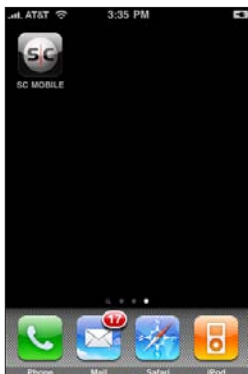
6.5.2   Setup

You can setup the SC Mobile application with at most one address book entry. When the application is first opened, the Addressbook will contain a default entry named "Demo Site", with which you can become familiar with the application. The Demo Site DVRs are hosted in Taiwan.

Before adding an Addressbook entry for your DVR, you must delete the Demo Site entry. You can also edit the Demo Site settings to access your DVR. In the following procedure, the Demo Site entry is deleted and a new entry is created.

1.   Open the SC Mobile application.

2.   Click the Demo Site entry in the address book to highlight it, then click the Delete button in the lower right corner of the screen. The Demo Site entry will disappear.
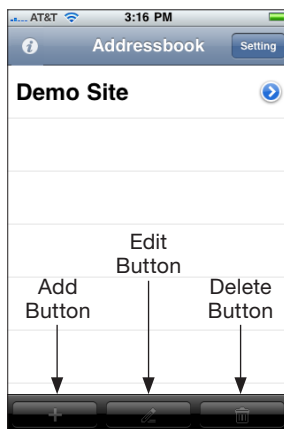
3.   Click the ✚ (Add) button in the lower left corner of the screen. A **New Item** entry will appear.

4.   Tap the Addressbook entry you added to highlight it, then tap the submenu icon, ⊘, for additional settings.
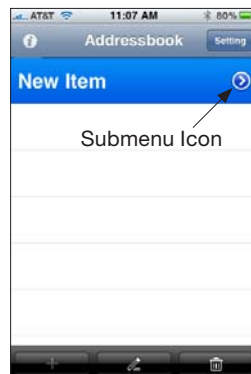
5.   In the **Setting** screen, tap the item you want to specify, then key in the appropriate information. Press **Done** to complete each entry.

Specify the Title, IP Address, Port (if other than 80), Username and Password for your DVR. If the DVR is setup with a dynamic IP address and you use a web-based service, such as DynDNS, to connect to your DVR, enter your DVR URL into the IP address field.

6.   If your DVR system has audio capability, set the Audio option to **ON**. For channel selection, tap the submenu icon, ⊘, for additional settings.

7.   Tap the **Get Type** button to see if you can connect to your DVR. If a connection is successful, the DVR type will appear in the field to the right. Otherwise, change the network settings as needed, then tap **Get Type** again to connect to the DVR.

8.   If the connection was successful, press the **Save** button in the upper right corner to return to Addressbook.

> **NOTE** *The SC Mobile Audio feature is not functional with DMR40DVD-2, DMR41DVD-2 and DMR42DVD-2 DVRs.*

9. On the Addressbook screen, tap the **Settings** button in the upper-right corner to configure the advanced options. These options include
    Auto login – Slide to **ON** to automatically log into the device in the Addressbook.
    Gesture Command – **ON** by default, slide to **OFF** to disable the direct-touch operations. When **OFF**, operate the device by touching the function buttons on the screen.
    PTZ Turbo – Speed up PTZ control (for Pan/Tilt/Zoom cameras only). For example, when set to "**2**", the program interprets one touch as two touches.
    Auto Lock – When **ON,** disables the iPhone keylock (hibernate when not in use) when there is no connection and the iPhone keylock is **ON**.

10. After making changes to the Settings screen options, press **Save**.

6.5.3   Using the SC Mobile app

1. Connect your iPhone to a Wi-Fi network. When the iPhone is connected to a Wi-Fi network, the Wi-Fi icon, 📶, appears at the top of the screen.

2. Open SC Mobile by tapping the icon on the app screen. Tap the ℹ️ icon in the upper left corner to open the SC Mobile information screen. Tap **Done** to return to Addressbook.
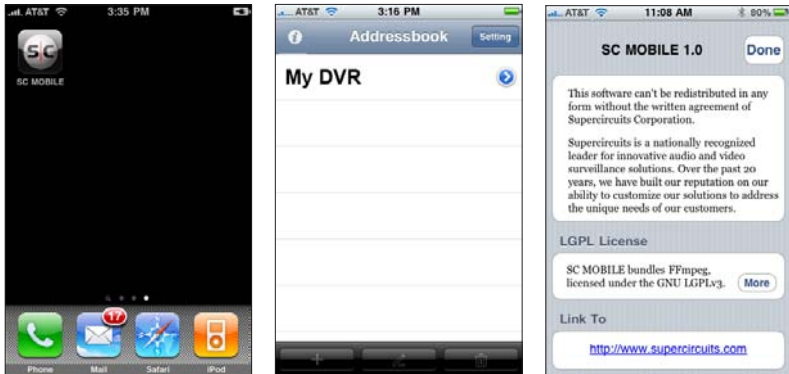
6.5.4   Login to your DVR

Tap the entry in Adressbook to login to your DVR. SC Mobile will connect to your DVR and open a channel display. See the following screen captures. If you turn the iPhone sideways, and enlarged view of the channel display appears.

6.5.5   Using the display features

•   After logging into a DVR, press the button at the top of the screen to overlay the screen with the Addressbook settings for the current connection.

IP Address – Shows the IP address or domain name of the connected device.

Resolution – Shows the image resolution (in pixels).

Quality – Shows the current image quality setting.

Audio – Shows whether the audio function is set to ON or OFF.

Frame Rate – Shows how many images are received by the DVR in one second.

Server Time – Shows the current date and time of the server.

Online User – Shows how many users are logged into this device.

- Press the **CH** button at the top of the screen to open the channel display screen.

To listen to (monitor) an audio channel, tap the audio icons at the bottom of the screen. In the example above, channel 1 is being monitored.

- On the channel display screen, tap a grid icon to select a 4, 9, or 16 channel display, then tap the channels block you want to display.

- To view a single channel, press the [CH] button then press the channel number you want to see.
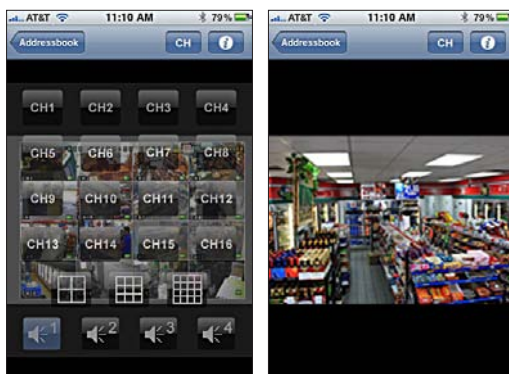
6.5.6   PTZ camera control

SC Mobile provides pan/tilt/zoom control of PTZ cameras. When a channel with PTZ features is displayed, icons located at the bottom of the screen can be used to control many pan/tilt/zoom functions. Touch and motion gestures on the camera image can be used to issue several commands.

Camera control buttons

When viewing images from the a PTZ camera, control buttons appear at the bottom of the screen.

Camera
Control
Buttons

Table 8. PTZ Camera control buttons

Button	Description
	Slight zoom in – This zoom in mode allows greater zoom control than the touch and motion gestures on the camera image (see **Step zoom in/out** below).
	Slight zoom out – This zoom out mode allows greater zoom control than the touch and motion gestures on the camera image (see **Step zoom in/out** below).
	Focus near – for adjusting the focus setting.
	Focus far – for adjusting the focus setting.
	Tilt – Tilts camera back 180°.

Button	Description
	Preset – Depending on the camera's capability, this feature allows you to preset a camera direction and zoom setup, and move the camera to that setup with a simple command. Up to six camera presets can be established. **Setting a preset**: Set the camera direction and zoom to a configuration you want to preset. Tap the **Preset** button, then press and hold for 3 seconds one of the six buttons that appear at the bottom of the screen. When the pop-up menu appears, tap **OK**. **Move to preset:** Tap the **Preset** button, then tap the number buttons associated with the preset you want to move the camera to.

6.5.7   Swipe left, right, up, or down

To move the camera left, right, up or down, swipe your finger across the screen in the opposite direction.

For example, to move the camera to the right, swipe the picture off to the left.

6.5.8 Logout

Return to addressbook, or press the iPhone **Home** button to close app.

SECTION 7
Specifications

Specifications shown in the following tables are subject to change without notice.

Table 9. Specifications

Model	DMR42DVD	DMR41DVD	DMR40DVD
Video system	NTSC		
Video compression format	H.264		
Video input (Composite video signal 1 Vp-p 75Ω BNC)	16 channels	8 channels	4 channels
Video loop output (Composite video signal 1 Vp-p 75Ω BNC)	16 channels	8 channels	4 channels
Video output (BNC) — Main monitor output	For static display		
Video output (BNC) — Call monitor output	For sequence display		
Video output (VGA) (up to 1600 x 1200)	Yes		
Audio input	4 channels (mono)		4 channels (mono)
Audio output	2 channels (mono)		1 channel (mono)
Multiplex operation	Supports live display, record, playback, backup, and network simultaneously		
Maximum record rate (frame)	120 IPS @ 704×480	60 IPS @ 704×480	30 IPS @ 704×480
Maximum recording rate (field)	240 IPS @ 720×240	120 IPS @ 704×240	60 IPS @ 704×240
Maximum recording rate (CIF)	480 IPS @ 360×240	240 IPS @ 360×240	120 IPS @ 352×240
Recording mode	Manual/Timer/Motion/Alarm/Remote		
Recording quality options	Super Best, Best, High and Normal		
Pre-alarm recording	Yes (up to 30 seconds)		
HDD Type	SATA		
HDD storage. HDDs are optional. Supports up to 1TB per HDD	Up to two SATA HDDs		Up to one SATA HDD
HDD Quick Cleaning	Delete HDD data efficiently (1TB within 2 seconds)		
Quick Search	Time/Motion/Alarm		
USB Flash Drive Backup	Yes		
DVD Writer Backup	Yes		
Network Transfer Format	H.264		
Ethernet	10/100 Base-T.		
Network Protocols	TCP/IP, PPPOE, DHCP		

Model	DMR42DVD	DMR41DVD	DMR40DVD
Network Surveillance Interface	Licensed software Video Viewer/Microsoft Internet Explorer and Firefox web browsers/ Apple QuickTime/Apple Safari/Apple iPhone SC Mobile App		
Remote Independent Operation	Yes		
Network Alarm Notification	E-mail and FTP server		
CMS (Central Management System)	Yes (up to 16 IP addresses)		
R.E.T.R. (Remote Event Trigger Recording)	NO		Yes
Operating System for Network Function	Windows Vista/XP/2000; Apple Mac OS X (browser or QuickTime only, no software)		
IR Remote Control	Yes		
Multilingual OSD	Yes		
Motion detection area	16 × 12 grids per channel		
Motion detection sensitivity	4 adjustable parameters for accurate detection		
PTZ Control	Pelco-D/Pelco-P		
External alarm	16 inputs, 1 output	8 inputs, 1 output	4 inputs, 1 output
Picture zoom	2X digital zoom (live and playback)		
Key Lock (password protection)	Yes		
Video Loss Detection	Yes		
Camera Title	Supports up to 6 letters		
Video Adjustable	Hue/Color/Contrast/Brightness		
Date Display Formats	YY/MM/DD, DD/MM/YY or MM/DD/YY		
Daylight Saving	Yes		
Voltage	19 V DC (±10%)		
Power	64 W		< 42 W
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)		50°F ~ 104°F (10°C ~ 40°C)
Dimensions (W × H × D)	17 × 3.5 × 12.8 in, 32 × 90 × 326 mm		14.8 × 2.4 × 11.1 in 375 × 61 × 281 mm
System Recovery	System auto recovery after power failure		
Optional Peripherals	Keyboard controller		

APPENDIX A
D-sub Connector Pin Configuration

A.1 DMR42DVD 25-pin D-sub connector configuration

Siren: When the DVR is triggered by alarm or motion, the COM connects with NO and the siren with strobe starts wailing and flashing.

Magnetic Contact: When the magnetic contact is opened, the alarm will be triggered and the recording is on.
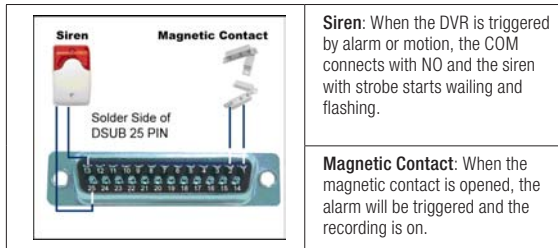
Table 10. 25-pin D-sub configuration for DMR42DVD

Pin	Function	Description
1	GND	GROUND
2~9	ALARM INPUT	Connect ALARM INPUT (pin 2 -- 9) and GND (pin 1) connector with wires. When an alarm is triggered, the DVR will start recording and the buzzer will be on. Pin 2 is Alarm 1. When the alarm is triggered, CH1 will start alarm-triggered recording. Pin 3 is Alarm 3. When the alarm is triggered, DVR CH3 will start alarm-triggered recording. Pin 4 is Alarm 5. When the alarm is triggered, DVR CH5 will start alarm-triggered recording. Pin 5 is Alarm 7. When the alarm is triggered, DVR CH7 will start alarm-triggered recording. Pin 6 is Alarm 9. When the alarm is triggered, DVR CH9 will start alarm-triggered recording. Pin 7 is Alarm 11. When the alarm is triggered, DVR CH11 will start alarm-triggered recording. Pin 8 is Alarm 13. When the alarm is triggered, DVR CH13 will start alarm-triggered recording. Pin 9 is Alarm 15. When the alarm is triggered, DVR CH15 will start alarm-triggered recording.
10~12	PIN OFF	NA
13	EXTERNAL ALARM NO	During normal operation, COM disconnects with NO. But when any alarm is triggered, COM connects with NO. **Attention**: Voltage and current must be < 24 V DC @ 1A.
14	PIN OFF	NA
15~22	ALARM INPUT	Connect ALARM INPUT (pin 15 – 22) and GND (pin 1) connector with wires. When an alarm is triggered, the DVR will start recording and the buzzer will be on. Pin 15 is Alarm 2. When the alarm is triggered, DVR CH2 will start alarm-triggered recording. Pin 16 is Alarm 4. When the alarm is triggered, DVR CH4 will start alarm-triggered recording. Pin 17 is Alarm 6. When the alarm is triggered, DVR CH6 will start alarm-triggered recording. Pin 18 is Alarm 8. When the alarm is triggered, DVR CH8 will start alarm-triggered recording. Pin 19 is Alarm 10. When the alarm is triggered, DVR CH10 will start alarm-triggered recording. Pin 20 is Alarm 12. When the alarm is triggered, DVR CH12 will start alarm-triggered recording. Pin 21 is Alarm 14. When the alarm is triggered, DVR CH14 will start alarm-triggered recording. Pin 22 is Alarm 16. When the alarm is triggered, DVR CH16 will start alarm-triggered recording.
23~24	PIN OFF	NA
25	EXTERNAL ALARM COM	During normal operation, COM disconnects with NO. But when any alarm is triggered, COM connects with NO. **Attention**: Voltage and current must be < 24 V DC @ 1A.

A.2   DMR41DVD 25-pin D-sub connector configuration

Siren: When the DVR is triggered by alarm or motion, the COM connects with NO and the siren with strobe starts wailing and flashing.

Magnetic Contact: When the magnetic contact is opened, the alarm will be triggered and the recording is on.

Table 11. 25-pin D-sub configuration for DMR41DVD

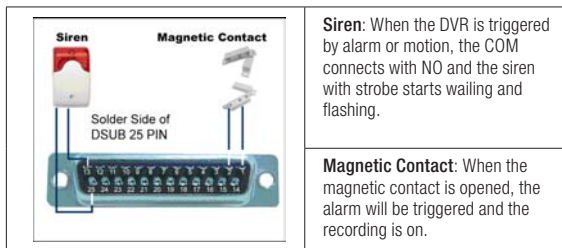| Pin	Function	Description
1	GND	GROUND
2~5	ALARM INPUT	Connect ALARM INPUT (pin 2 – 5) and GND (pin 1) connector with wires. When an alarm is triggered, the DVR will start recording and the buzzer will be on. Pin 2 is Alarm 1. When the alarm is triggered, DVR CH1 will start alarm-triggered recording. Pin 3 is Alarm 3. When the alarm is triggered, DVR CH3 will start alarm-triggered recording. Pin 4 is Alarm 5. When the alarm is triggered, DVR CH5 will start alarm-triggered recording. Pin 5 is Alarm 7. When the alarm is triggered, DVR CH7 will start alarm-triggered recording.
6 ~ 12	PIN OFF	NA
13	EXTERNAL ALARM NO.	During normal operation, COM disconnects with NO. But when any alarm is triggered, COM connects with NO. **Attention**: Voltage and current must be < 24 V DC @1A.
14	PIN OFF	NA
15~18	ALARM INPUT	Connect ALARM INPUT (pin 15 – 18) and GND (pin 1) connector with wires. When an alarm is triggered, the DVR will start recording and the buzzer will be on. Pin 15 is Alarm 2. When the alarm is triggered, DVR CH2 will start alarm-triggered recording. Pin 16 is Alarm 4. When the alarm is triggered, DVR CH4 will start alarm-triggered recording. Pin 17 is Alarm 6. When the alarm is triggered, DVR CH6 will start alarm-triggered recording. Pin 18 is Alarm 8. When the alarm is triggered, DVR CH8 will start alarm-triggered recording.
19~24	PIN OFF	NA
25	EXTERNAL ALARM COM	During normal operation, COM disconnects with NO. But when any alarm is triggered, COM connects with NO. **Attention**: Voltage and current must be < 24 V DC @ 1A.

A.3   DMR40DVD 15-pin D-sub connector configuration

Siren: When the DVR is triggered by alarm or motion, the COM connects with NO and the siren with strobe starts wailing and flashing.

Magnetic Contact: When the magnetic contact is opened, the alarm will be triggered and the recording is on.
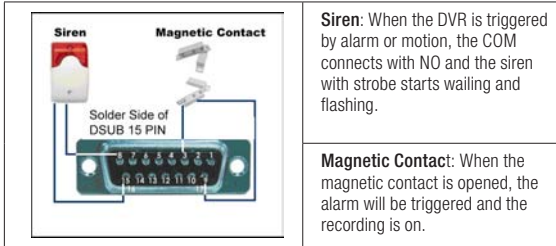
Table 12. 25-pin D-sub configuration for DMR40DVD

Pin	Function	Description
1~2	PIN OFF	NA
3~6	ALARM INPUT	Connect ALARM INPUT (pin 3 – 6) and GND (pin 9) connector with wires. When an alarm is triggered, the DVR will start recording and the buzzer will be on. Pin 3 is Alarm 1. When the alarm is triggered, DVR CH1 will start alarm-triggered recording. Pin 4 is Alarm 2. When the alarm is triggered, DVR CH2 will start alarm-triggered recording. Pin 5 is Alarm 3. When the alarm is triggered, DVR CH3 will start alarm-triggered recording. Pin 6 is Alarm 4. When the alarm is triggered, DVR CH4 will start alarm-triggered recording.
7	NC	During normal operation, COM connects with NC and disconnects from NO. But when any alarm is triggered, COM disconnects with NC and connects with NO. Attention: Voltage and current must be < 24 V DC @1A.
8	NO	During normal operation, COM disconnects with NO. But when any alarm is triggered, COM connects with NO. **Attention**: Voltage and current must be < 24 V DC @ 1A.
9	GND	GROUND
10	RS485-B	Using RS485 serial communication signals, DVR can be controlled by the keyboard controller.
11	RS485-A	Using RS485 serial communication signals, DVR can be controlled by the keyboard controller.
12~14	PIN OFF	NA
15	EXTERNAL ALARM COM	During normal operation, COM disconnects with NO. But when any alarm is triggered, COM connects with NO. **Attention**: Voltage and current must be < 24 V DC @ 1A.

APPENDIX B
Compatible USB Flash Drives

USB flash drives used for firmware upgrade and backup must be compatible with the DVR. If the USB flash drive is not compatible, the message USB ERROR is reported, or the flash drive will not function as expected. See the table below for a list of USB flash drives known to work well with the DVR.

NOTE   *Format the USB flash drive for a FAT32 file system.*

NOTE   *You can backup up to 2 GB video data at a time with a USB backup. To backup additional data, set the time and channel(s) you want, and restart a backup.*

Table 13. USB flash drive compatibility

Manufacturer	Model	Capacity
Apacer®	AH320	2 GB
	AH320A	8 GB
	AH220	1 GB
	AH320	4 GB
ADATA™	RB-18	1 GB
Transcend®	JFV35	4 GB
	JFV30	8 GB
Sony®	Micro Vault Tiny	1 GB
Sandisk®	Cruzer® Micro	2 GB
	Cruzer Micro	4 GB
	Cruzer4-pk	2 GB
MSI™	F200	4 GB
PQI®	U172P	4 GB
Netac®	U208	1 GB

APPENDIX C
Compatible HDD Models

The DVR accommodates only SATA hard disk drives (HDDs). HDDs in the following list are known to be compatible with the DVR. Firmware upgrades may allow other models to also be compatible.

Table 14. HDD compatibility

Manufacturer	Model	Capacity	Rotation
Seagate®	ST3320613AS	320 GB	7200 rpm
	ST33500320AS	500 GB	7200 rpm
	ST3750330AS	750 GB	7200 rpm
	ST31000340AS	1000 GB	7200 rpm
Western Digital®	WD3200AAKS	320 GB	7200 rpm
	WD5000AACS	500 GB	7200 rpm
	WD6400AAKS	640 GB	7200 rpm
	WD7500AAKS	750 GB	7200 rpm
	WD10EACS	1 TB	7200 rpm
	WD10EADS	1 TB	7200 rpm
	WD15EADS	1.5 TB	7200 rpm
	WD20EADS	2 TB	7200 rpm
Maxtor®	STM3500320AS	500 GB	7200 rpm
	STM3750330AS	750 GB	7200 rpm
Hitachi®	HDT725032VLA360	320 GB	7200 rpm
	HDS721010KLA330	1000 GB	7200 rpm

APPENDIX D
Troubleshooting FAQ

Refer to the table below for troubleshooting suggestions. The table includes typical problems and their solutions. Check these suggestions before calling your Supercircuits for support.

Table 15. FAQ (Frequently Asked Questions)

Questions	Solutions
No power	Check power cord connection.
	Confirm that power is supplied from the outlet.
DVR doesn't respond when pressing any button	You might be in "Key Lock" mode. Undo key lock mode and retry your commands.
HDD detection failed	Replace the failed HDD with another HDD for testing.
	Check/replace the SATA data cable.
Can't detect a USB flash drive	Try another FAT32 formatted USB flash drive.
	Reformat the USB flash drive as FAT32 and try again.
No live video	Verify that the camera is powered on.
	Check the setting of the camera lens.
	Check the monitor's video cable and connection.
	Check the camera's video cable and connection.
No recorded video	Verify that the HDD is installed and connected properly.
	Verify that the MANUAL RECORD ENABLE is set to ON, and the record function in the CAMERA menu is set to ON.
Timer recording is not working	Verify that the TIMER RECORD ENABLE option is set to ON and the timer schedule is setup.
Motion detection recording is not working	Verify that the EVENT RECORD ENABLE option is set to ON.
	Verify that the detection function DET is set to ON.
	Verify that the detection area (AREA) is setup properly.
Can't play the recorded data on my DVR	There must be at least 8192 images of recorded data for playback to work properly. If not, your DVR will stop the playback. For example, if the IPS is set to 30, the recording time should be at least 274 seconds (8192 images/30 IPS) for the playback to work properly.
Can't backup video with audio	Make sure the audio cameras are connected to the DVR channels which support the audio function.
Can't view DVR images through the network with IE web browser	Check the DVR firmware version.
	Allow ActiveX® controls or applet in the browser.

Questions	Solutions
Failed to backup recorded files from a remote PC. (For details, see "Network Backup")	Verify that your username and password is allowed.
	Verify that the network connection setup is correct (IP Address/Port/User Name/Password).
	Specify the hard disk (HDD) number where the recorded data is saved. Specify the correct channel.
Failed to upgrade the firmware/OSD file	Check the USB flash drive is format for a FAT32 file system.
	Verify that the firmware/OSD is correct.
IR remote control doesn't work.	Verify that batteries are installed and it is functional.
	Ensure that you are aiming the remote control at the IR receiving zone.

APPENDIX E
RS232 Protocol

The DVR can be controlled through the RS232 interface from an ASCII terminal. The table below equates DVR functions and the ASCII command codes that produce them. Communication through the RS232 port uses a format of 8 bit data with 1 start bit and 1 stop bit.
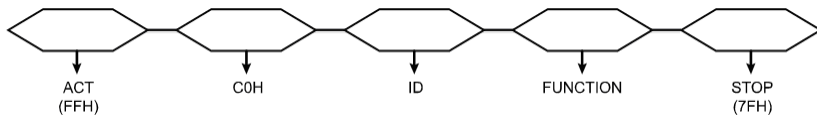

| ACT (FFH) | C0H | ID | FUNCTION | STOP (7FH) |

Table 16. RS232 protocol functions and codes

Function	Code	ASCII	Function	Code	ASCII
KEY_MENU	0x4D	M	KEY_SET_CHANNEL	0x6e	n
KEY_ENTER	0x0D	ENTER	KEY_DWELL	0x65	e
KEY_PLUS	0x6b	k	KEY_CH1	0x31	1
KEY_MINUS	0x6d	m	KEY_CH2	0x32	2
KEY_UP	0x55	U	KEY_CH3	0x33	3
KEY_DOWN	0x4E	N	KEY_CH4	0x34	4
KEY_LEFT	0x4C	L	KEY_CH5	0x35	5
KEY_RIGHT	0x52	R	KEY_CH6	0x36	6
KEY_POWER	0x57	W	KEY_CH7	0x37	7
KEY_REC	0x72	r	KEY_CH8	0x38	8
KEY_PLAY	0x50	P	KEY_CH9	0x39	9
KEY_SLOW	0x53	S	KEY_CH10	0x41	A
KEY_ZOOM	0x5A	z	KEY_CH11	0x42	B
KEY_KEY LOCK	0x4B	K	KEY_CH12	0x43	C
KEY_AUDIO	0x64	d	KEY_CH13	0x44	D
KEY_SEARCH	0x73	S	KEY_CH14	0x45	E
KEY_PTZ_MODE	0x70	p	KEY_CH15	0x46	F
KEY_PTZ_PRESET	0x71	q	KEY_CH16	0x47	G
KEY_PTZ_ZOOM_IN	0x69	i	KEY_EJECT_DVD	0x6a	j
KEY_PTZ_ZOOM_ OUT	0x66	f	KEY_IRIS_NEAR	0x67	g

Function	Code	ASCII
KEY_MODE	0x6f	o
KEY_4 CUT	0x61	a
KEY_9 CUT	0x62	b
KEY_16 CUT	0x63	c

Function	Code	ASCII
KEY_IRIS_FAR	0x68	h
KEY_PTZ_LIGHT	0x6c	l
KEY_PTZ_WIPER	0x77	w

APPENDIX F
DVR Battery Replacement

To maintain the correct time in the DVR system during a power interruption or shutdown, a battery is installed in the DVR. If the correct time is not maintained during these events, this battery may need to be replaced. If so, use the following instructions.

NOTE	*The DVR battery is non-chargeable. Always replace this battery with only the same or equivalent type of battery (CR2032).*

To replace the DVR battery, do the following:

1. Stop DVR recording.

2. Backup all recorded data, if necessary.

3. Power off the DVR and disconnect the DVR power cable.

4. Remove the DVR cover.

5. Find the battery on the mainboard. The battery is located close to the rear panel.

6. Push the release latch as shown in the following picture, then remove the battery from the socket.

7. Insert a new battery into the battery socket with the label side facing up.

8. Replace the DVR cover.

9. Reconnect the power cable and power on the DVR.

10. Set DVR date and time.

11. Resume normal use.

APPENDIX G
Recording Time Table

The recording time capacity of your DVR depends on camera resolution, picture complexity, and frequency of the object movement. However, to approximate the recording time capacity of your DVR, measurements were made by sending a static image sent to each DVR channel and configuring each channel for the highest image quality and IPS rate. Measurements were made in FRAME, FIELD, and CIF modes.
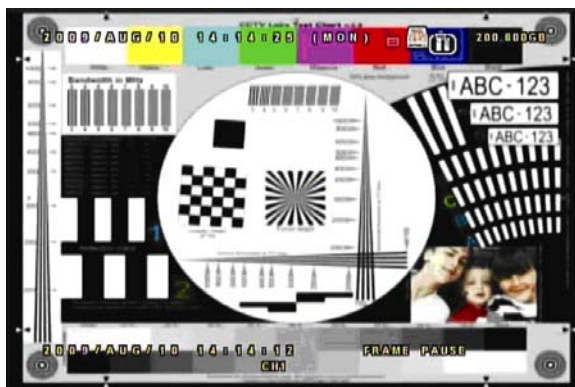
Recording times shown in the following tables are approximate.

Table 17. HDD usage for 16 channel recording

Record mode	Quality	IPS	GB/Hour	750 GB Record Time (days)
FRAME		120	3.39	9.22
FIELD	BEST	240	1.17	26.71
CIF		480	0.977	31.99

Table 18. HDD usage for 8 channel recording

Record mode	Quality	IPS	GB/Hour	750 GB Record Time (days)
FRAME		60	1.768	17.68
FIELD	BEST	120	0.679	46.02
CIF		240	0.643	48.6

Table 19. HDD usage for 4 channel recording

Record mode	Quality	IPS	GB/Hour	750 GB Record Time (days)
FRAME		30	1.23	25.41
FIELD	BEST	60	1.104	28.31
CIF		120	1.062	29.43